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ON CONGENITAL HEART AFFECTIONS, ESPECIALLY IN RELATION TO THE DIAGNOSIS OF THE VARIOUS MALFORMATIONS.

THE WIGHTMAN LECTURE FOR 1909.*

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(*Continued from page* 404.)

Coarctation of the Aorta.

Coarctation of the aorta is the name which has been given to stenosis or atresia of that vessel, either at or below the isthmus, that part which lies between the left subclavian artery and the ductus arteriosus. Soon after birth that narrow section of the aorta which is not much used during intra-uterine life is apt to be smaller than neighbouring parts of this artery, but when the circulation is reconstructed this part soon acquires its proper proportional relationship. Bonnet describes two types. In one, the *infantile*, there is diffuse narrowing of the aorta at the isthmus. In the other, the *adult* form, there is an abrupt constriction as of a cord at or near the insertion of the ductus arteriosus. The infantile type is developmental

* Delivered at the Section for the Study of Disease in Children of the Royal Society of Medicine, June the 24th, 1909.

and may consist of a moderate stenosis only, or owing to the complete failure of development in regard to that part of the fourth branchial arch which lies between the ductus arteriosus and the subclavian artery the part corresponding of the aorta—the isthmus—is represented by a cord only or completely disappears. The *adult* form he considers is not of developmental origin, because it does not occur in the fœtus and is not met with until the closure of the ductus arteriosus, and is brought about by the act of closure of the duct itself, elements of which are incorporated in the aorta, and which by their contraction constrict that vessel as with a ligature. In the infantile type of cases patency of the ductus arteriosus is common, and in the adult type that channel is usually closed. In the adult type extensive collateral circulation is common according to Bonnet. In the infantile type associated cardiac developmental anomalies are common and often severe; in the *adult* type the anomalies are usually unimportant and rarely severe. In the adult type the percentage of cases without associated cardiac developmental anomalies is far greater than in the *infantile.*

But the association of the adult type with even a smaller proportion of congenital anomalies, and even though they be of minor import, such as bicuspid aortic valves, fused aortic valves, irregular origin of the great vessels, happens too frequently to neglect the suspicion which these associations impart.

The infantile type of stenosis is rarely seen after infancy. It is the adult type which provides the well-known clinical picture of coarctation of the aorta, which comprises external evidences of collateral circulation and inequalities between the pulses of the upper and lower extremities. The arteries in the neck are full and strong and perhaps enlarged; those in the lower extremities give a slow, weak and retarded pulse. The collateral circulation is usually carried on by the union of the first intercostal arteries of the subclavian anastomosing, with enlarged intercostal arteries from the aorta. The posterior scapular artery from the third part of the subclavian, passing through the neck muscles along the vertebral border of the scapula, anastomoses with the intercostals of the upper interspaces close to the spine. The subscapular from the first part of the axillary artery anastomoses in the axilla with the long thoracic which unites with the intercostals. The internal mammary from the first part of the subclavian unites with the aortic intercostals by its anterior intercostal branches. Enlarged phrenic arteries from the abdominal aorta anastomose with enlarged phrenic branches from the internal mammary. The enlarged superior epigastric branches

of the internal mammary anastomose by enlarged branches with the superior epigastric of the external iliac. In these cases, therefore, enlarged and tortuous arteries may be expected to appear along the scapulæ, in the axillæ, and on the abdomen.

I have met with two examples of this disease, one probably of the *adult* type and the other of the *infantile*. The former occurred in the case of a syphilitic boy, aged 5 years.* He displayed enlarged, tortuous and pulsating arteries in the neck, about the scapulæ, axillæ and abdomen. Very feeble pulsation could be detected in the femorals, which felt like rigid cords. The abdominal aorta could be felt feebly pulsating. *Per rectum* a number of enlarged and tortuous arteries could be felt by bimanual palpation in the abdominal wall, and a collection of enlarged and tortuous vessels was detected in the pelvis, especially in the neighbourhood of the sacro-sciatic notch, which felt like a collection of worms. A vessel which was dissected out in the abdominal wall did not pulsate like an artery, and the blood looked venous. The microscopical appearances were natural. The left ventricle was hypertrophied and a murmur was detected at the base, better on the right side than the left, and conducted better to the right clavicle than the left. It was heard also over the right chest behind and in the right axilla, and over the spine of the left scapula. I did not have an opportunity of examining this case post mortem. I found tubercles in the choroid, and the mother, learning from the ward sister that he had tuberculous meningitis, removed him.

My second case occurred in a boy, aged 3 years. The left ventricle was hypertrophied and dilated, and there was a loud systolic bruit all over the chest, back and front, and conducted into the neck. At the apex there was a double bruit, systolic and diastolic, and a systolic thrill. The second sound at the base was thick. The carotids pulsated violently, and pulsation could be felt at the finger-tips. The pulse was not aortic in character.

The aortic and mitral valves were thick at their edges, and the former irregular along their free border. The pulmonary valves were thickened. The aorta, which was pouched immediately above its valves, was contracted at the isthmus to about a No. 7 catheter. The ductus arteriosus was patent and of good size. The descending aorta was normal. The subclavian, internal mammary and superior intercostal arteries were of normal size.

This latter case illustrates the bruit and the area of its con-

* "A Case of Coarctation of the Aorta," 'Reports of The Society for the Study of Disease in Children,' vol. viii, p. 158.

duction, which may arise in these cases if the aortic valves be affected, as they sometimes are. If the aortic valves were normal probably a systolic bruit heard loudest over the second left interspace would be succeeded by a ringing aortic second sound.

From the literature it appears that patients with coarctation of the aorta may live long and the condition not be suspected. In some death takes place suddenly and without obvious reason, sometimes from rupture of the aorta. In a case recorded by T. J. Horder, of dissecting aneurysm of the aorta in a boy, aged 12 years, rupturing into the pericardium, this appears to have been an example of stenosis of the isthmus.* Or death may occur from heart failure preceded by the signs and symptoms of mitral disease.

Gossage† has recently reported a case of coarctation of the aorta in a boy, aged 17 years, illustrated by a skiagram. There were systolic and diastolic bruits over the aorta, the former conducted along the great vessels of the neck and over the spine as low as the third dorsal vertebra.

Congenital Aortic Stenosis and Atresia.

Congenital aortic stenosis and atresia are much rarer than the corresponding defects at the pulmonary artery. Conus stenosis in this situation takes the form of a thickened ring of the endocardium, just below the aortic valves, which involves the base of the anterior mitral cusp, and is ascribed by Keith to arrest of development. The danger of this rare anomaly lies in its tendency to become the seat of endocarditis. In aortic atresia, brought about by such conditions as obliteration at the root or by fusion of the cusps, the left ventricle atrophies and the circulation is conducted through the foramen ovale, patent septum ventriculorum, and patent ductus arteriosus. The life of such cases has been limited to a few weeks. In aortic valvular stenosis there are two forms: one in which the septum ventriculorum is perfect, the other in which it is deficient. In this latter variety other developmental anomalies are the rule. The clinical interest is centred in the former variety, because these cases may have a long life, and the damaged valves are liable to endocarditis. Fisher‡ describes as one cause for valvular stenosis a

* "Dissecting Aneurysm of the Aorta in a Boy, aged 12 Years; Rupture into Pericardium" 'St. Bartholomew's Hospital Reports,' vol. xliii.

† 'Proc. Roy. Soc. Med.,' Clinical Section, May, 1909, vol. ii, No. 7, p. 210.

‡ 'Reports of the Society for the Study of Disease in Children,' vol. iv, p. 68.

band just below the centre of the valves running round them and forming a diaphragm almost independently of the cusps themselves. In the two cases of aortic stenosis in infants, also shown by Fisher* and already mentioned, in one the segments of the aortic valve were much thickened and adherent to one another, and in the other there were organised vegetations on this valve and on the pulmonary also. In the former there were no associated abnormalities, but in the latter there was a defective septum ventriculorum, a communication between the aorta and pulmonary artery above the valves and several congenital somatic defects. Fusion of the cusps into a diaphragm with a small central aperture is apt to occur, but this condition is less frequently combined with other malformations than happens with the corresponding condition of the pulmonary valves.

Aortic disease in children of the acquired type is not as rare as is commonly supposed, and some of the cases are no doubt of congenital origin. Cautley† showed such a case to the Society for the Study of Disease in Children in 1901, in a boy, aged 7 years, the condition being diagnosed at two years of age. Cases have also come under my observation. A boy, aged 11 years, with divergent recti was brought to me by his parents for an opinion because it was proposed to operate upon him for that condition. He was supposed to be perfectly healthy, and advice was not sought as to the health of his organs. As a matter of routine I stripped and examined him. I was surprised to discover that he had typical aortic disease, associated with a double bruit. He had contracted scarlet fever at eighteen months, but there had been no other illness, and the announcement came as a surprise to his parents and his doctor. A girl, aged 3½ years, who had never had rheumatism, but whose parents were rheumatic, and was not a blue baby but always had a high colour, when seen by me was blue in the face, had purple lips, and marked œdema of the legs. The liver was down to the umbilicus, and there was some free fluid in her abdomen. The red blood-corpuscles numbered only 3,000,000 per c.mm., and the hæmoglobin amounted to 70 per cent. The heart was greatly enlarged, on the right side reaching to the nipple, and on the left the maximum impulse was one finger's breadth outside the nipple-line in the sixth interspace, and the cardiac shadow well outside the nipple. A noisy, harsh, growling murmur was heard at the apex beat where it was loudest, and this was conducted into the vessels of the neck and down to the left elbow. In front it was audible

* *Loc. cit.*

† 'Reports,' vol. i, p. 133.

all over the chest and axillæ, and was heard in the abdominal aorta and both external iliacs as far as the femorals. Behind, it was heard over both backs, better on the left side, and it could be traced all down the cervical and dorsal spine and to the bottom of the sacrum. The second sound over the aortic cartilage was heard with difficulty, if at all, while the second pulmonary was best heard over the third, fourth, and fifth left costal cartilages, and the spaces between them. The first cardiac sound was replaced by the murmur. The point of maximum intensity of an associated systolic thrill was over the sixth interspace, outside the nipple-line, and it was of wide conduction. Later, a further analysis of the murmur at the apex became possible; it could then be broken up into two component parts, one of them being the original growling bruit of extensive conduction, the other a soft blowing systolic murmur distinct from it, and audible over an area which could be covered by a wine-glass. There were occasions, also, on which it was possible to distinguish two varieties of thrill, of synchronous occurrence, one jarring, like the loud bruit, the other soft and purring, like the soft blowing systolic murmur. In a few days the heart became smaller, the liver decreased, the dyspnœa disappeared, the lips and cheeks developed a red colour, and the finger-tips a dull pink, and all the signs of acute heart dilatation and failure disappeared. The pulse then became regular, and of good volume. The murmurs remained. When she was last seen the pulmonary shadow, of small size, was in the third left interspace behind and the top of the heart at the fourth rib. There was no aortic shadow in any of the skiagrams which suggests a small aorta. On the right side the heart was seen by X rays to be two fingers' breadth outside the right sternal margin. To the left the shadow was inside the nipple and with the apex beat as before. The jarring systolic thrill was still best felt over the apex beat, but it was very marked over the epigastrium and it was felt to the right of the sternum, better above than below, and quite well over the manubrium sterni. It was not felt in the neck vessels. The aortic second sound was very feeble if at all heard, and the second pulmonary was accentuated. The murmurs had not changed in character in the interval. The liver was three fingers' breadth below the costal margin in the nipple line. The case is interesting, not only from its age, but also from the fact that the aortic bruit was best heard over the cardiac impulse, and not over the aortic cartilage. The soft blowing mitral bruit probably indicated incompetence from dilatation and not leakage from valvulitis. Another point of clinical

interest, a recognition of which will prevent falling into error, is that aortic disease in children is apt to be associated with a bruit which is heard loudest over the pulmonary area, and not over the aortic cartilage.

Hypoplasia of the Aorta.

Hypoplasia of the aorta is characterised by diminution in size of the aorta and arteries throughout the body, the walls of which are thin and elastic.

The condition was known to Rokitansky, who associated it with abnormalities of the external genitalia. Subsequently Virchow discovered that chlorosis, hypoplasia of the arterial system, and a small heart were commonly combined. Under-development of the arterial system retards growth and sexual development, and those with an insufficient arterial system are pale and ill-developed. In a specimen of this condition exhibited by Cautley * and which was removed from a child, aged 8 months, the aorta was small and received but little blood. The pulmonary artery was much dilated, and the heart large and globular. The child was poorly developed and died suddenly. No bruit was heard during life. Hochsinger† has figured the heart of a child, aged 5 months, with transposition of the great vessels in which the pulmonary artery, as in Cautley's patient, was very large. In thirty cases collected by Vierordt which came to post-mortem only one occurred in a child.

A congenital origin has been claimed for this condition, because it is so commonly associated with anomalies in the generative and circulatory systems. A congenital tendency to the dwarfing of the arterial system had been ascribed to tuberculosis in the parents, and it may be due to other states of bad health. The corresponding condition, as has been mentioned, is sometimes seen in the pulmonary artery and its branches.‡

Hypoplasia of the aorta is associated with a dwarfed heart in some instances, and in others with an enlarged heart confined to the left side or involving both ventricles. If the heart be small during childhood it hypertrophies at puberty. The period of danger in these cases appears to belong to adolescence, when heart failure is not unlikely to occur, and this is more likely to arise under physical strain. Apelt § narrates two cases of this disorder in youths, aged

* 'Proc. Roy. Soc. Med.,' Section for the Study of Disease in Children, vol. ii, p. 35.

† Pfaundler and Schlossmann, 'Diseases of Children,' vol. iii, p. 479, Shaw and La Fetra.

‡ *Loc. cit.*

§ 'Deut. med. Woch.,' 1905, p. 1186.

17 and 21 years, in which acute dilatation of the heart supervened, and with the usual symptoms. Intractable anæmia and subnormal temperatures are common combinations.

The Auriculo-Ventricular Valves.

Defects in the auriculo-ventricular valves are very uncommon. They are commonly combined with other cardiac abnormalities, uncomplicated lesions of the mitral and tricuspid valves being exceedingly rare. Of the two valves the tricuspid is more frequently attacked than the mitral, and of the lesions tricuspid atresia is the commonest.

Rogers and Brickdale * showed, in 1905, to the Society for the Study of Disease in Children a heart which had been removed from a child, aged 2 years, in which the right auriculo-ventricular aperture was closed by a smooth membranous septum, into which the chordæ tendineæ were inserted. There was no sign of endocarditis. The septum ventriculorum was patent and the foramen ovale open.

In my own case † there was not a suspicion of a valve.

In Abercombie's ‡ case from an infant aged 5 months the tricuspid orifice was the size of a hemp-seed, and completely obliterated by a fleshy mass.

In a case recorded by Crocker § in a boy, aged 7 months, whose pulmonary artery was narrowed by adherent valves, the right ventricle was rudimentary and the tricuspid valve was absent. The pulmonary artery was $\frac{1}{4}$ in. in diameter and very thin walled, and bifurcated in the usual manner. The ductus arteriosus was closed. A perforated septum ventriculorum, the size of a quill, led to the rudimentary right ventricle. The foramen ovale was widely open and divided into two by a thin cord of membrane.

Tricuspid stenosis in association with disease of the pulmonary valves is occasionally seen. In Osler's || case in a child, aged 4 months, the valve was thick, and thick-rimmed, the orifice admitting the tip of the little finger. The pulmonary valve was thickened and its cusps fused. The septum ventriculorum was complete, and the foramen ovale open. Recent vegetations were present on the tricuspid valve.

* 'Reports of The Society for the Study of Disease in Children,' vol. v, p. 47.

† *Loc. cit.*

‡ 'Path. Soc. Trans.,' 1883, vol. xxxv, p. 78.

§ 'Path. Soc. Trans.,' 1879, vol. xxx, p. 276.

|| 'Cyclopædia of the Disease of Children' (Keating), vol. ii, part ii, p. 756 (illustrated).

According to Maude Abbott * there are only four cases recorded of primary congenital tricuspid stenosis unassociated with pulmonary disease, viz. by Peacock, Romberg, Kucher, and Stow.

In Brindeau's† case of *tricuspid insufficiency* the infant's face was deeply cyanotic at birth, and associated with this were two pulsating swellings in the submaxillary region. Auscultation disclosed a bruit synchronous with the cardiac systole. The child lived only a few hours after birth. The heart was greatly enlarged, principally at the expense of the right side, and almost entirely filled the thoracic cavity. Puncture of the right auricle permitted the escape of a large quantity of blood with the disappearance of the tumour upon either side of the face. The jugular vein formed the facial swelling. The wall of the auricle was thinned, but that of the ventricle was thickened, exceeding even the thickness of the left ventricle. The tricuspid orifice was greatly dilated, permitting the introduction of the whole hand. The valve leaflets were thickened, shortened, and incompetent. The pulmonary orifice displayed no abnormality. The orifice of the superior vena cava was enlarged, that of the inferior was normal in size. *The foramen ovale was closed.* The ductus arteriosus was obliterated. The left side of the heart presented no abnormality. Histological examination of the tricuspid valve disclosed a round-cell infiltration in process of fibrous transformation, but without the presence of micro-organisms. In Zariquiey's case an infant, dead at the age of 11 months with right-sided ventricular hypertrophy, there was tricuspid and pulmonary obstruction and insufficiency. Railton has also reported the case of a boy who died of tricuspid insufficiency at the age of 4 years, and presented, in addition to a deficiency of the interventricular septum and right-sided hypertrophy of the heart, old tricuspid valvulitis, which was believed to be of prenatal origin, together with recent endocarditis, which was assumed to be a continuation of the original process.

In John Thomson's case,‡ a child, aged 20 months, with congenital ptosis, the internal cusp of the tricuspid valve was shrivelled and glued down over, and almost closed what would have otherwise been a large opening in the interventricular septum. This opening was represented only by a small tortuous sinus, admitting a No. 7 catheter.

Mitral atresia is very rare. Cases have been recorded by

* 'System of Medicine' (Osler and McCrae), vol. iv, p. 390.

† "Intra-uterine Fœtal Endocarditis," 'Pediatrics,' vol. ii, p. 93.

‡ "Tricuspid Incompetence," 'Edinburgh Hospital Reports,' vol. ii, pp. 292–294.

Rokitansky, Thérémin, and by Lawrence and Nabarro,* and in each instance the condition has been associated with somatic abnormalities.

A specimen of *congenital mitral stenosis* was exhibited at the Society for the Study of Disease in Children by Fisher † in 1901. It was taken from a child aged 15 months. The mitral valve was not more than $\frac{1}{10}$ in. across. The stenosis was of a double character —a perforated diaphragm attached to the upper part of the auricular surface of the mitral valve segments, and below the diaphragm the mitral segments and the chordæ tendineæ were much thickened and contracted.

In Carmichael's case,‡ which occurred in a child, aged 3 years, "the mitral orifice showed a very high degree of stenosis, the chordæ tendineæ being so fused as to leave only three minute orifices, each not more than $\frac{1}{32}$ in. in diameter, the only channels for the blood to pass into the ventricle." Associated with this was a short patent ductus arteriosus, $\frac{1}{8}$ in. in diameter. In Nash's§ case, a girl, aged 6 months, the valve was much thickened and diminished in size, and in a case reported by Simmons in a child, aged 19 months, the symptoms had existed since birth.

In Ayrolle's ‖ case, which died ten days after birth, there was marked stenosis and also numerous endocarditic vegetations.

In a case reported to the Philadelphia Pediatric Society by Roger and Wilson ¶ in a boy, aged $6\frac{1}{2}$ years, the left auriculo-ventricular orifice was rudimentary, a small slit-like opening connecting it with the left ventricle. The pulmonary artery showed moderate stenosis, its orifice being entirely muscular. There was complete transposition of the viscera and a variety of mixed transpositions in the heart.

Of *mitral insufficiency* Cautley ** has afforded an example in a girl, aged 22 months. The mitral valve was represented by thickened, shrunken, fibrous masses of horse-shoe shape.

In Steffen's case in a boy, aged $10\frac{1}{2}$ months, quoted by Maude Abbott, †† there were no tricuspid segments, but the valve formed a

* 'Journal of Anatomy and Physiology,' 1901–02, p. 62.

† "Congenital Mitral Stenosis in a Child aged 15 Months," 'Reports of The Society for the Study of Disease in Children,' vol. ii, p. 13.

‡ 'Edinburgh Hospital Reports,' vol. ii, pp. 298–303.

§ *Loc. cit.*

‖ 'Rév. Mens. des Mal. de l'Enf.,' 1885.

¶ British Journal of Children's Diseases, vol. v, p. 176.

** 'Reports of The Society for the Study of Disease in Children,' vol. ii, p. 261.

†† *Loc. cit.*, p. 393.

low ridge, which was thickened, reddened, and slightly jagged. The *mitral cusps* were similarly thickened and reddened, and one of them was reduced to a narrow ridge.

In Fisher's case of mitral stenosis the bruit was systolic, and in Carmichael's there was no bruit.

In Cautley's case of mitral insufficiency the physical signs were those of mitral regurgitation.

Hypertrophy of the Heart.

Hypertrophy of the heart undoubtedly arises as an idiopathic disease of congenital origin. Simmons was the first to record a case of its existence at birth. He found the heart of a newly born child, who died during the labour, to be enlarged to twice its natural size, all other organs of the body being quite healthy. Prior to that Hauser* had recorded a case in a baby, aged 11 months, in which the heart was enormously dilated, with hypertrophied right and left ventricles. Virchow suggested that the hypertrophy might be congenital. In the same year Wayland Chaffey,† of Brighton, recorded a case in a girl, aged 3 years. The heart was enlarged to three times the natural size, the left side suffering the most. The child developed tricuspid incompetence from right-sided dilatation, accompanied by the usual associations. Chaffey refers to a similar case recorded by Hyde Salter‡ in 1866, in a sailor, aged 35 years, which appears to be the first case recorded, and some thirty years prior to Hauser's case and to Virchow's observations. This patient had enjoyed unbroken health up to eighteen months previous, when he had an attack of rheumatic fever, and during this attack he suffered for the first time in his life from great palpitation, præcordial pain, and dyspnœa.

The Naturalists' Society in Stuttgart possess a collection of preparations by Oberdörfer, which shows that muscular hypertrophy for which none of the usual causes are found are not very rare. There are six cases in early childhood which show an enormous hypertrophy of the heart-muscle. This observation is quoted from Bahrdt§ who exhibited a case of enlargement of the heart in infancy, which he attributed to primary hypertrophy of that organ.

* 'Allg. med. Centralztg.,' 1896, lxv, 615.

† "A Case of Cardiac Hypertrophy, probably Idiopathic," 'Pediatrics,' vol. i, p. 105, February, 1896.

‡ 'Brit. Med. Journ.,' July the 28th, 1866.

§ 'Berl. klin. Woch.'; in 45 'Gesellschaft der charite Aertze.'

In a case recorded by Kalb * in an infant, aged 6 months, there was a large thymus and sudden death. Hochsinger † has found by X-ray photographs hypertrophy of the heart and enlarged thymus combined, and gives a reproduction of the appearances.

Examples of gross enlargement of the heart are also reported in association with other cardiac irregularities, which are not readily explainable from the point of view of the lesions. Thus in a case reported by W. B. Hadden in a girl, aged 4 months, ‡ the heart was nearly five times the normal amount (weight 4 ozs.). The pulmonary artery was large, the aorta was inversely small. There was an imperfect ventricular septum.

Clinically, children with bullock's heart are apt to develop an intense anæmia, and finally succumb to failure of the right heart with the usual symptoms. Pallor and restlessless are suggestive of the condition.

Cardiac Displacements.

Cardiac displacements such as *dextrocardia* and *mesocardia* are the only congenital malpositions that are of interest to the physician and therefore that need be reviewed. Dextrocardia accompanied by transpositions of the viscera is commonly viewed rather as a rare developmental freak than recognised, as should be the case, as a not very out-of-the-way clinical experience. It sometimes happens in association with somatic deformities such as hare-lip and cleft palate, § or the condition may be combined with complete transposition of the cardiac cavities || and their respective vessels as in a specimen exhibited by me in May last at the meeting of the Children's Section. This child showed internal developmental defects in the form of a unilateral kidney and a cyst in the tongue. There may be complete transposition of the viscera without displacement of the heart, and that organ, though not misplaced, may be badly malformed as in Roger and Wilson's case¶ shown to the Philadelphia Pediatric Society. Crozer Griffith, in the discussion

* 'Munich Thesis,' 1906.

† Pfaundler and Schlossman, 'Diseases of Children,' vol. iii, p. 458, Shaw and La Fétra.

‡ 'Path. Soc. Trans,' 1882, vol. xxxiii, p. 50.

§ "Transposition of the Viscera in a Boy with Hare-lip and Cleft Palate," by J. G. Buchanan, 'M. and S. Rep.,' 1896, lxxiv, 188; 'Pediatrics," vol. i, p. 329.

|| "Congenital Morbus Cordis; Complete Transposition; Transposition of Liver, Spleen, and Large Intestine; Cyst in Tongue; Solitary Kidney." 'Proc. Roy. Soc. Med.,' vol. ii, p. 233. Section for the Study of Disease in Children.

¶ "Philadelphia Pediatric Society," British Journal of Children's Diseases, vol. v, pp. 176–7.

that followed, said he had seen two cases resembling it both of which came to autopsy.

It certainly must be borne in mind that there may be developmental errors in the heart when dextrocardia is associated with transposition of the viscera, although some books state that the condition is of no clinical importance.

Evidence has also been produced at the meetings of the Society for the Study of Disease in Children that this teaching requires modification. Hawthorne* exhibited a lad, aged 14 years, with a dextrocardia confined to the heart, over which was to be heard a systolic bruit situate at the region of the impulse—the presumed mitral area—and a double bruit over the presumed aortic orifice. Whipham† also exhibited a girl, aged 8 years, with transposition of the liver and spleen and dextrocardia, over whose heart could be heard a systolic bruit at the apex and a duplicated sound at the base. Langmead‡ stated at the meeting at which this case was shown that at two autopsies the heart was found to be on the right side in each and the presence of acquired endocarditis was demonstrated. Presumably the viscera were also transposed, though the state of the organs was not specifically mentioned by him. The possibility that such displaced hearts may be more vulnerable to endocarditis than hearts in a normal situation has to be thought of as well as the possibility of associated developmental cardiac error.

Dextrocardia without associated transposition of the viscera is rare, and not only is it rare, but it must be viewed with suspicion because the diagnosis of congenital dextrocardia has been made on some few occasions, and this opinion has not been confirmed by autopsy. Maude Abbott§ quotes Kriezer's collection of fourteen cases of congenital dextrocardia, from the literature in nine of which there were autopsies. Of these nine there were three correctly diagnosed, and of the three, in one there was transposition of the great vessels and cavities. I have myself seen two examples of dextrocardia without associated transposition of viscera. In one, a child,‖ aged 5 months, the condition was combined with congenital

* 'Reports of the Society for the Study of Disease in Children,' vol. vii, p. 187.

† 'Proc. Roy. Soc. Med.,' vol. ii, No. 6, p. 169. Section for the Study of Disease in Children.

‡ *Ibid.*, vol. ii, p. 170.

§ Osler and McCrae, "Congenital Cardiac Disease," 'Syst. of Med.,' Chap. IX, vol. iv, p. 345.

‖ "Curious Congenital Cysts of the Lung associated with Dextrocardia caused by Pressure from the Cystic Lung," 'Reports of the Society for the Study of Disease in Children,' vol. iv, pp. 96–99, with illustrations.

cystic disease of the right lung, and this appears to have been the case in two of Krieger's collection. My other case is still alive, a girl, aged 5 years. As far as can be determined this condition of dextrocardia is the sole developmental abnormality. The heart-sounds are normal. There are a few moist sounds in the lung on the right side.

Sometimes the position of the fœtal heart in the centre of the thorax is maintained, giving rise to the condition known as *mesocardia*. The apex-beat will then be felt in the epigastrium, and the position of the organ will readily be demonstrated by the X rays.

In conclusion, gentlemen, pray permit me to express to you my appreciation of your very kind attention. I have, as you have heard, made this lecture as far as possible a record of my clinical and pathological experiences, and I have freely availed myself of the recent writings and the clinical contributions of others on the topic of congenital heart affections, all of which have been duly acknowledged, so as to bring the subject up to date in all important items. I have purposely omitted all reference to treatment, because that in no sense differs from that which is considered appropriate in acquired maladies of the heart. The question is often asked by parents in these cases, "How long will the child live?" Before we can foretell what will happen we must first ascertain what is wrong with the organ. My efforts have therefore intentionally been directed rather to this side of the subject than to the remedial aspect, and with what measure of success must be left to your judgment. It remains for you to fill up in the future any clinical gaps that you may have observed, and of which I am fully conscious, in the diagnostic problems which have been presented to you.

SOME REMARKS ON THE DIAGNOSIS OF CHRONIC PULMONARY TUBERCULOSIS IN SCHOOL CHILDREN.

By John Allan, M.D.

The frequency of chronic pulmonary tuberculosis in children has recently given rise to much controversy, and the opinions expressed have been conflicting and the statistics put forward have shown wide differences. The figures given recently by the majority of observers would seem to prove that in school children the incidence of pulmonary tuberculosis of the adult type is not very

great. Dr. Mary Hamilton Williams (1), however, found 15·4 per cent. of school children in Worcestershire affected with chronic pulmonary tuberculosis, and she believes that it is one of the commonest diseases of childhood. Her statements have been adversely criticised by Fisher (2), Carr (3) and Sawyer (4), and certainly the figures given by many other observers are relatively so small as to make the figures of Dr. Mary Williams very conspicuous. It is interesting to note that Dr. B. Addenbrooke (5), of Kidderminster, has related that in three cases diagnosed as pulmonary tuberculosis by Dr. Williams he failed to find evidence of this disease. I was resident at Kidderminster for nine months and I was struck at the time by the singular freedom (I might almost say immunity) of the children there from phthisis. In looking over my notes I find that of 120 children of school ages treated as in-patients not one had phthisis, and of a large number of children treated in the out-patient department I do not recollect seeing a case in which the diagnosis of pulmonary tuberculosis was made, and I only remember one where there was any suggestion of tuberculosis of the lungs.

Horton and Lecky (6), in examining 806 school children at Brighton, found phthisis present in three cases, or ·37 per cent. They epitomise in the form of a table the results of a number of observations carried out during the previous four or five years. The highest percentage (2·3) was obtained by McKenzie in Edinburgh, while Low of Dundee and Ash of Dumfermline did not diagnose phthisis in any of the children examined. It is worthy of remark that in practically all places the percentage of children suffering from other lung diseases (mainly bronchitis) was high. Low found 12·1 per cent. of the children examined (517) so affected.

Sawyer (7) has quoted the percentages given by several medical officers in the reports to their respective education authorities. They vary from ·13 per cent. in Dumfermline to 1·6 per cent. in Wrexham. Of children who had been specially referred for examination 2·3 per cent. were found to be the subjects of pulmonary tuberculosis in Oldham, while in Blackburn 6·2 per cent. were considered phthsical. Meikle (8), in the examination of 3548 newly enrolled pupils in Edinburgh schools found phthisis in only two. Sawyer (7), from an analysis of 8000 children diagnosed ·19 per cent. as suffering from pulmonary tuberculosis of the adult type and ·14 per cent. as being doubtful cases of pulmonary tuberculosis of the adult type. He states: "Of the 15 children in whom a diagnosis of phthisis was made 4 have already become quite well again, so that it may be fairly presumed that the lung affection was not of

tuberculous origin." I am not quite clear as to what is meant. Does he mean that any lung condition (labelled "query early consumption ?") which becomes cured by treatment cannot possibly be tuberculous, or in other words that tuberculosis of the lungs in children is incurable ? That would be a perfectly legitimate inference, but in my opinion it would be quite an erroneous verdict in point of fact and one which is not borne out by clinical evidence. There is nothing to justify such a pessimistic view. Kelynack (9) writes as follows: "It has been commonly stated that pulmonary tuberculosis is infrequent in children, and when it occurs it almost invariably runs an unfavourable course. Both these statements are clinical inexactitudes."

During a term of fourteen months' residence at the Royal Alexander Hospital for Sick Children, Brighton, 954 children came under my notice as in-patients, and of these about 600 between the ages of four and twelve. Of that number two were diagnosed as suffering from chronic phthisis, while there were six cases which were considered doubtful. As regards the out-patients, of about 3000 children between the ages of four and fourteen treated during that period only four had chronic phthisis, while about 20 were under observation as doubtful cases.

Dr. Mary Williams has the support of some authorities in her high estimate. Grancher (10) found 1 in 500 affected with "open" tuberculosis of the lungs, and 11 to 14 per cent. of boys, and 17 to 20 per cent. of girls suffering from "closed" pulmonary phthisis. Floyd and Bowditch (11), from the examination of between 600 and 700 tuberculous children, found that in all but two cases the disease appeared as the adult type or chronic phthisis. Young (12) has expressed the opinion that chronic fibro-caseous tuberculosis of the lungs is extremely rare under the age of four years, but is the usual form in later life. Holt (13) also maintains that chronic phthisis is very rarely seen before the fifth year, and that it is not at all frequent until the tenth or twelfth year, from which it is evident that he believes that in later childhood this type may be frequently encountered. Newsholme, at the Second International Congress on School Hygiene (1907), expressed the opinion that latent tuberculosis was very common in children.

Sawyer (7) has supported his theory from evidence gained at autopsies. He discovered in the course of 244 post-mortems in children under 15 years of age only two cases in which there was a condition at all comparable with the chronic phthisis of adults. From which he concludes that this type of phthisis is a rare disease

in childhood. It is a well-known fact that men who have opportunities to make large numbers of autopsies frequently discover the healed lesions of tuberculosis in the lungs of persons (children as well as adults) who have succumbed to other diseases. From which one may infer that pulmonary tuberculosis is frequently curable, and that if it were recognised in its earlier stages one might hope to get a better percentage of cures than one does at the present time. Squire (14) says that the large number of cases of children dying from other causes in which scars of old and healed tuberculosis are found in the lungs shows that recovery frequently takes place. Such a statement, coming as it does from one whose experience in this branch of work is very considerable, should carry weight. As regards such healed lesions discovered post mortem, surely it is reasonable to conclude that in the majority of cases the children during life had had chronic phthisis. Clinical experience proves that acute phthisis is a dangerous and fatal disease, and I cannot believe that healed lesions found after death have resulted from acute pulmonary tuberculosis (especially in children) in many cases.

Probably the great difficulty in arriving at the diagnosis of pulmonary phthisis among school children is the fact that many chronic lung conditions simulate it. There is also no standard of symptoms and physical signs on which the diagnosis of phthisis in children can be based. Different observers arrive at their conclusions by different methods, and until there is more uniformity one cannot hope to obtain statistics which are comparable. The diagnosis of pulmonary consumption is often made on quite insufficient evidence, such as the association of chronic cough with wasting, night-sweats, etc. Even cases where suggestive signs can be made out often clear up completely. Young (12), from the analysis of the records of 337 cases of children under the age of fifteen, the majority being between seven and fourteen, brought to his out-patient department at the Brompton Hospital for cough, expectoration and wasting, found only 45 showing definite signs of tuberculous disease of the lungs, in only a small number of which was the diagnosis confirmed by examination of the sputum. Fisher (15), Riviere (16), and Maxwell Telling (17) have discussed certain forms of chronic lung diseases in children, diseases which might possibly be mistaken for chronic tuberculosis.

As Dr. Mary Williams is apparently the person who has found the highest percentage of cases of pulmonary tuberculosis among school children, it may be well to examine the data on which her contentions are based. The standard on which she bases her

diagnosis will probably be objected to by many, and by the adoption of this standard she probably includes many cases which would be excluded by others who adopt a more rigid standard. When one comes to consider the matter it must be admitted that it is not only those cases in which the lung substance is broken down and tubercle bacilli are being freely expectorated that one wishes to detect, but it is also most important that those cases which are, so to speak, on the border-line should be recognised. Cases in the former group not only play a vital part in the spread of the disease, but are also unsatisfactory from a therapeutic point of view. The cases in the second group are less likely to act as sources of infection, and they are cases which one may hope to cure by appropriate treatment.

The early signs and symptoms on which Dr. Mary Williams (1) relies are as follows: The three symptoms which she believes of most importance are night-sweating (with certain qualifications), morning anorexia and fatigue. She finds that the children tire easily. They may forget the tiredness in excitement, but if so they collapse afterwards. Many of her cases reach home from school so tired that they promptly fall asleep. The other symptoms mentioned by her are that the children with early phthisis are constantly catching cold, have headaches, etc. Cough is a matter of chance, the majority of cases do not cough in the daytime, hence are not dangerous to others. One symptom which can only be discovered in a fairly intelligent child is pain—pain quite apart from pleurisy, occurring early, over a small lung area. It is a feeling of soreness and appears to indicate inflammation commencing in a new focus. Loss of weight is most important. The children suspected of phthisis are being weighed monthly. She often finds a rise of temperature, even in the morning, but not in fibroid cases. *Auscultatory:* The chief point that she generally tries to make out is whether there is any area which sounds unlike the rest, and her difficulty has been with the right apex, as it is not easy to determine slight variations from the normal at this spot. She has failed to feel any certainty about any change in the character of the inspiration as indication of a tuberculous focus, this being a point on which Grancher laid much stress. She points out that two of the doctors who carried out part of the special work in the London schools speak of certain changes they find as indicating an atelectatic condition of lung, these changes being patchy dulness, tubular breathing and crepitations. I am inclined to agree with her in her assertion that such a condition does not exist beyond infancy, except as a pathological curiosity, and I consider that these physical signs taken along with

the general symptoms mentioned above indicate the probability of pulmonary phthisis. Dr. Williams remarks that it is common to hear that such and such a sign, such as crepitations at one apex, have no significance, because on the next examination they have cleared up, and she says that if there is one thing certain about crepitations due to early phthisis it is that they may be present one day and not a week later.

The various points mentioned by Dr. Williams as aids to the diagnosis of phthisis in school children have been given fairly fully, so that one may form a just estimate of the value of the statistics she gives. In my opinion these signs and symptoms are not as a rule sufficient for one to make a positive diagnosis of phthisis in children. Doubtless some of the children presenting this train of symptoms may be suffering from phthisis, but to come to this conclusion on the strength of one examination will certainly give a false estimate of the frequency of the disease among school children. To diagnose early pulmonary phthisis in the examination suggested by the Board of Education is a matter of extreme difficulty, if it is not an absolute impossibility. If the medical inspection of school children is to be of any value then more efficient inspection will have to be enforced, and some such scheme as that outlined and so ably expounded by Dr. George Carpenter (18) must be adopted. It is nonsense to say that efficient examination can be made by simply loosening the clothes, so that only a small part of the chest is available for auscultation, etc. Early cases will be missed, and thus those cases which offer the best field for effecting a cure will remain untreated; or the diagnosis will be come to on insufficient data and thus too high an estimate of the frequency of the condition will be formed, and some parents may be unnecessarily alarmed through a mistaken diagnosis having been made.

I believe Dr. Williams makes a fundamental error when she asserts, "I believe that a chronic non-tuberculous bronchitis is rare between the ages of five and fifty, unless due to heart disease, Bright's disease, or some other definite pathological entity, and is extremely rare in comparison with phthisis." In the out-patient department of a children's hospital many of the children who attend for treatment suffer from chronic bronchitis, which in the majority of cases is non-tuberculous in nature. This chronic bronchitis is not transient, lasting for a few weeks, but persists for months or even for years. In many cases it is intermittent, and there is a disease which can best be described as periodic bronchitis in children. In a short article elsewhere (19) I have drawn

attention to some of the points in connection with this condition. While in the majority of cases the general symptoms may not be severe, in a few there is considerable wasting, and there may be anæmia, night-sweats, slight evening rise of temperature, etc. Dr. Newsholme, formerly medical officer of health for Brighton, used to impress on his workers in dispensary and hospital practice the importance of having the sputum of "chronic bronchitics" tested for tubercle bacilli, and I know for a fact that in one or two cases in adults where the symptoms merely pointed to persistent chronic bronchitis tubercle bacilli were found in the sputum. In a few of my cases of children with chronic bronchitis associated with symptoms suggestive of tuberculosis the sputum was examined, but always with negative results.

In a large number of those children who suffer from periodic bronchitis there are enlarged tonsils and adenoids, and this leads to the statement that in a debilitated child who has hypertrophied tonsils and adenoid vegetations the train of symptoms exhibited is often such that phthisis is suspected. The symptoms may include a hacking cough, mucous or muco-purulent expectoration, lack of appetite, a marked degree of malnutrition, loss of flesh and strength, failure of growth, etc., and at one or both apices there may be slight dulness on percussion, bronchial breathing, and occasional crepitations. The removal of such enlarged tonsils and adenoids often acts like a charm and the improvement in general health and nutrition soon allays any fear there may have been that the child was the subject of phthisis. It seems not improbable that the presence of hypertrophied tonsils and adenoids is a source of weakness to the child, and as such may be an important ætiological factor. In children at or about puberty it must not be forgotten that other local conditions, such as atrophic rhinitis, "latent empyemata" of the accessory sinuses, etc., may cause much ill-health, and loss of weight and strength, accompanied by cough, sweating, swinging temperature. On treatment of the local cause all the symptoms disappear.

Another condition which must be kept in mind as it may be occasionally met with is post-influenzal in nature. It sometimes happens that after an attack of influenza which may or may not have been accompanied by symptoms of pneumonia there remains apical consolidation with well-marked signs, associated with loss of weight, nocturnal temperature, sweating, etc. I have met with two cases of this nature in children, but both slowly cleared up under dietetic and general tonic treatment. In his letter of criticism of

Dr. Williams' paper Dr. Fisher (2) mentions that recurrent fever is an ailment in children which may be commonly met with, and which may cause symptoms of ill-health that may suggest tuberculosis to the uninitiated. He also remarks that the symptoms given by Dr. Williams may, broadly speaking, be said to be those of dyspeptic children, of children the subject of cyclical albuminuria or of children physiologically delicate—a statement which no one who has had anything to do with children's diseases will be prepared to deny. There are many other conditions which may simulate chronic phthisis in children, but it would take too long to consider each one separately. In the papers of Drs. Fisher (15), Riviere (16), and Maxwell Telling (17) many chronic lung affections in children (for example, dilatation of the bronchial tubes, pulmonary fibrosis, unresolved pneumonia, etc.) are discussed, and the discussion, indeed, covers practically all the chronic diseases of the lungs liable to be mistaken for phthisis.

In considering the diagnosis of chronic pulmonary phthisis in the child at school we are confronted with a problem which is difficult and requires much care. The signs and symptoms already enumerated are so general that it may be said that singly or collectively they may be due to tuberculosis, but in the majority of cases some other lung condition (or extra-pulmonary disease) will account for them. Cough is a symptom in children which may be due to many causes besides phthisis or other lung diseases, and it is one of the least important symptoms. The hard, hacking cough which is fairly characteristic of phthisis in the adult is by no means pathognomonic in the child. My experience has been that of children who attend the out-patient department of a hospital during the winter and spring months something like 50 per cent. are brought on account of cough, but only very occasionally is this cough due to real or doubtful pulmonary phthisis. Dr. Young (12) remarks that a cough associated with sickness or with expectoration in a child under the age of six who has not been taught to spit out should excite suspicion if whooping-cough and bronchiectasis can be excluded. Afternoon fever, shown by flushed face and tired feeling, is a fairly suggestive symptom, and should certainly make one examine most carefully all the systems for a possible explanation. In all my cases in children in which a diagnosis of revealed pulmonary tuberculosis (not including acute cases) was made this symptom was present in a marked degree, and in practically all the cases which were considered doubtful it was present to a less extent. In other cases where the symptoms, cough, loss of flesh and weight, anorexia, night-

sweats, dyspepsia, etc., might be regarded by some as due to tubercle, I have rarely found this symptom and then only in a very mild form. Pallor and anæmia practically always accompany phthisis, and these are not even mentioned by Dr. Williams. Marked anæmia in an emaciated child should direct one's attention to the possibility of phthisis, because in non-tuberculous lung conditions, though there may be pallor, it is nothing like so marked as in phthisical subjects. It may be incidentally mentioned that in the acute cases the anæmia is made all the more conspicuous by reason of the hectic malar flushes. Loss of weight is undoubtedly a symptom of phthisis, but it is also a symptom of many other conditions. Dr. Williams mentions the fact that the children examined by her and who are suspected of being phthisical are being weighed monthly. This is one of the most practical suggestions in her paper. A child who is being treated as tuberculous and whose weight steadily falls, or even remains stationary, may be regarded as in all probability the subject of phthisis. In none of the other conditions (except in very exceptional cases) will the weight fail to increase with treatment. Loss of weight under such circumstances may be taken as a symptom affording confirmatory evidence. Dr. Williams mentions pain as an early symptom. I do not know what has been the experience of others in this country with regard to this symptom, but I have made no note of it in my cases in children and I do not recollect having observed it, although I have several times met with it in adult cases. Francke (20) believes in pressure pain as a symptom of beginning consumption, and he lays special stress on the value of testing for pathological pain pressure areas. The other symptoms that may be met with are of little value. Night-sweating, if it be considered at all, must be qualified in some such manner as suggested by Dr. Williams. Dyspepsia, anorexia, etc., are more often symptoms of other conditions. Expectoration is not usual in the young child and the sputum is difficult to obtain. If obtainable it is seldom characteristic, and if characteristic the case is not necessarily one of phthisis, because I have seen typical nummular sputum in lung conditions other than phthisis—for example, unresolved pneumonia. The characteristic sputum, too, would rather indicate an advanced case.

With regard to physical signs these are most variable in children. Calmette (21) has great faith in Grancher's phenomenon, which is asymmetry of inspiration. The least difference in the vesicular inspiration of the two sides, especially above and immediately below the clavicle, indicates a change in the side in which the sounds are

harsher, weaker or less vesicular. I am quite prepared to admit that this sign may be of value in the adult, but in the child it is of little use. The so-called puerile breathing is common enough in children, and there may be differences in the character and intensity of the breath-sounds in perfectly healthy children. Impairment of the percussion note cannot be taken as a pathognomonic sign in the child. There may be slight diminution in clearness and duration of the percussion note or slight increase in resistance to the finger in children who are merely suffering from enlarged tonsils and adenoids. Philip (22) has drawn attention to what he has termed *tidal percussion,* which consists essentially in the practice of percussion alternately during expiration and full inspiration. The same observer also recommends a *special line of percussion* for the determination of slight degrees of apical dulness. There may be slight increase of the tactile and vocal vibration; any marked increase in the vocal resonance, especially pectoriloquy associated with amphoric breathing, points to cavity formation, which indicates a more advanced stage of the disease. There may be depression or flattening in the region of one or other clavicle or supra-spinous fossa and the chest expansion may be deficient. The adventitious sounds may be scanty or absent, but sometimes crepitant or gurgling râles are to be heard. Latham (23) believes that for all practical purposes we must diagnose pulmonary tuberculosis when we find diminished resonance and increased resistance to the finger associated with the presence of persistent crepitations or fine râles in those situations in which tubercle usually begins, *i. e.* in the apices of the lungs, more especially towards their posterior aspect. He is very insistent about the adventitious sounds being persistent. He writes: "It is not uncommon to see patients, especially children, in whom some pulmonary lesion has been followed by a localised emphysema at one or other apex, together with the formation of adhesions. In such cases we may have retraction of the supra-clavicular or supra-spinous fossa, with impaired resonance and diminished entry of air. These cases simulate tuberculosis very closely, but any adventitious sounds which may be present clear up when the patient coughs or breathes deeply—in other words they are not persistent." No doubt that may be true enough, but crepitations need not be present day after day, week after week before one can diagnose phthisis. A diagnosis of phthisis may be perfectly justified, although the crepitations may be intermittent, *i. e.* present one week but absent the next. The association of the physical signs, dulness on percussion, bronchial breathing, and intermittent crepitations in an emaciated child who

is markedly anæmic will generally justify a diagnosis of pulmonary tuberculosis. In arriving at a diagnosis the physical signs must be taken along with the general symptoms and all should be carefully analysed. There is no single sign in the child from which one can at once diagnose phthisis; it is only from a careful consideration of the train of symptoms presented and the physical signs found that an approximation to the truth can be arrived at. On no account should a record of the family history regarding tuberculosis be omitted.

The conclusion to be come to with regard to chronic phthisis in children is that this condition cannot be with certainty diagnosed in the course of the medical inspection of school children. All that can be said is that suspicious cases may be found, and these should be referred to the family medical attendant or to the local hospital for further examination, observation and treatment. These doubtful cases certainly require supervision and treatment, and all the more so as many of them are on the border-line, and by appropriate measures early phthisis can be cured or phthisis may be prevented. Many of these cases may be described as "preventorium" cases, a term which includes cases of children who are physiologically delicate, and who are suspected of being phthisical, although a definite diagnosis cannot be made. Ewart (24), in a short, able article, has made a strong appeal for the recognition and for the supervision of such cases. With the greater facilities afforded for better diagnosis by frequent examinations a more correct decision may be come to, and, moreover, further aids can be sought to assist in the elucidation of the case.

If any sputum can be obtained it should certainly be examined frequently for the presence of tubercle bacilli. It is well known that until the child reaches the age of seven or eight he does not expectorate naturally, but he swallows his sputum. Every endeavour should be made to break the child of this habit, which is fraught with grave danger, the child being liable to secondary alimentary infection if sputum containing tubercle bacilli is swallowed. The isolation of the bacilli from the alvine discharges may be tried, and Rosenberger (25) has succeeded in this in a few cases of patients suffering from "open" tuberculosis. He believes that it will afford evidence of diagnostic value in patients suffering from chronic cough without expectoration, phthisis being suspected. Serio-basile (26) and Solis-Cohen (27) have also obtained positive results. Attempts have been made to detect tubercle bacilli in a swab taken from the larynx, but not with very successful results.

The saliva should also be examined for tubercle bacilli, as Neild and Dunkley (28) have recently demonstrated their presence in that medium. A method advocated by Blume (29) may also be tried in the case of an intelligent child. It is a suitable measure for endeavouring to get sputum from a patient who coughs, but who does not, or cannot, expectorate any real sputum. The child is given a piece of clean glass—a clean microscopic slide will do—and told to hold it in front of his mouth when he coughs. This may be coughed on for several days if necessary, and the specimen is then fixed and stained for tubercle bacilli in the usual way. The detection of tubercle bacilli is a certain diagnostic. Latham (23) says: "Where tubercle bacilli are present in the expectoration or saliva, no matter what symptoms may be present, no matter what physical signs may be found we must make a positive diagnosis of pulmonary consumption." The possible presence of a localised tuberculous ulceration (*e. g.* of gum, buccal mucous membrane, etc.) must not be forgotten, and the occasional but very rare existence of non-tuberculous gangrene of the lung in which an acid-fast bacillus similar to the tubercle bacillus is found must be kept in mind.

There are many aids that may be employed to assist in the diagnosis of tuberculosis. Among others may be mentioned Calmette's ophthalmo-reaction and von Pirquet's cutaneous reaction. Both these methods have been largely tried during the last few years, and the consensus of opinion seems to be that they are of undoubted value. The former, while more reliable, is not free from danger, and many practitioners now prefer to use the cutaneous reaction in the first place. Of more elaborate methods, we have subcutaneous injections of tuberculin controlled by the opsonic index estimation. Again, the blood may be examined for eosinophile cells, which are said to be absent in early tuberculosis. Rosenberger (30) has recently drawn attention to the demonstration of tubercle bacilli in the blood. He believes that they are constantly present, and in 125 cases examined up to January the 15th, 1909, all were positive, *i. e.* the bacilli were found in the blood. He is also of opinion that the bacilli can be demonstrated in the blood before they appear in the sputum. In the X rays we have another useful diagnostic aid. Calmette (21) is sceptical of their value, but many observers in this country have demonstrated their utility. Lawson (31) has testified to their value in several interesting papers illustrated by photographs. Cunnington (32) is a strong advocate in favour of their use, and he believes that consumption can be thus

diagnosed before the stethoscope tells anything. The chest should be examined not only by means of the fluorescent screen but should also be photographed. By the former method the movement of the diaphragm, the degree of transillumination of the apices and any area of shadow present both in inspiration or expiration can be studied. In the case of a diseased lung the corresponding half of the diaphragm moves through a smaller excursion than the other; also a diseased apex will "light up" less well on deep inspiration than on the healthy side. Both these signs are met with in early cases. By means of the photograph we obtain impressions of very small areas of disease, too small to show on screen examination.

From the consideration of the above facts it will be evident that the diagnosis of early pulmonary consumption in children is a matter of great difficulty and that aids in diagnosis are necessary. It is not easy to understand how anyone can diagnose chronic pulmonary tuberculosis in the course of a ten minutes' examination of a child, when this examination is supposed to be a full medical report. In conclusion, it may be said that while it may not be possible to agree with Dr. Mary Williams in her conclusions one cannot but sympathise with her, actuated as she is by high ideals and by an earnest desire for the welfare of the future generation. It is difficult to get away from the idea that she has over-estimated the incidence of pulmonary tuberculosis among school children, although it may be that her estimate is as near the mark as that of those who believe that the incidence of the disease in children is extremely small. It seems certain that she has included many children who are physiologically delicate but who cannot be justifiably termed tuberculous. If the two groups were distinguished no objection could be made, for those delicate children certainly require medical supervision, as they are prone under adverse circumstances to become infected with tubercle. The whole subject is one of great complexity, and its study is not only interesting from a medical point of view but it is also of national importance, because these children represent the future citizens of the empire. To stamp out and vanish from our land this white plague of tuberculosis should be the constant aim of all, and an important step in the accomplishment of this ideal is the early recognition of the disease in children. Much can be and should be done, and it is to be hoped that the benefits accruing to the medical inspection of school children will be great, and that efficient inspection will help towards the emancipation of our race in diminishing the incidence of, or even freeing it from, this dreadful curse of consumption.

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GENETOUS TYPE OF IMBECILITY WITH SINGLE PTOSIS.

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Many classifications of the various types of imbecility in children are recognised. Their differences are due to the different standpoints from which the cases are viewed. There is the clinical classification, as recommended by Dr. Hutchison, the pathological

one of Dr. Potts, while the ætiological standpoint is used by Dr. W. W. Ireland.

It is noteworthy that the various attempts to classify these cases of imbecility leave the largest group quite ill-defined. In fact, the type to which I refer depends for its existence on the absence of the characteristics of other well-defined groups, such as cretinism, mongolism, etc. The name even differs, for one must admit that

"genetous," "unclassifiable," and cases of "simple primary amentia," though different in name are referable to similar cases. Within this group may be found cases ranging from idiocy to mere backwardness, from children who can neither walk nor talk to those who may possibly be able to earn a livelihood.

One of the signs which is recognised in connection with the more serious of these unclassifiable cases is double congenital ptosis. This is due, of course, to a deficiency in the third nerve or its nucleus. The lesion is only partial, and the other signs of paralysis of

the third nerve, such as diplopia and external strabismus, are not mentioned.

In a mentally deficient child it is reasonable that both halves of the brain should suffer. It is more uncommon and more difficult to imagine that the deficiency should be confined to one half. It was partly for this reason that I thought it worth while to report a case of "unclassifiable" or "genetous" imbecility with single congenital ptosis which lately came under my observation at the Children's Hospital, Temple Street, Dublin. The case has, however, many points of interest. It is worth recording if only for the consideration of the prognosis and family history.

The patient is a girl, aged 10 years. She is quiet and diffident. She has a pale, unhealthy colour, her left eyelid droops, and she shows that type of chest and face which is associated with the presence of adenoids. The expression is vacant. Her speech is jerky and indistinct.

The family history on the mother's side was extremely good. The father did not drink to excess. Both parents and the other children in the family were healthy. But all the near relations on the father's side drank excessively. The child's paternal grandmother was said to have "died of drink."

This fact I regard of importance. Dr. W. A. Potts,* in his recent ingenious and interesting articles in the British Journal of Children's Diseases, states, in referring to American statistics, "The close investigation of these records shows that often it is not drinking on the part of the parents but in an earlier generation that does the mischief."

Before discussing the prognosis I may briefly mention the stigmata of degeneration present in the case.

(1) Physical stigmata: Vacant expression, narrow forehead (not shown well in photo), Gothic palate, winged ears, with deficient helix.

(2) Physiological stigmata: Nocturnal enuresis to age of nine, fæcal incontinence to age of seven, slow in learning to walk and talk (the mother mentioned these facts without being asked).

(3) Psychological stigmata: Body restless, rhythmic movement of hands. Cannot be taught to read, write, or sew; offers to "clean cups," and after cleaning one runs away. Loses temper easily; remembers what the rest of the family have forgotten; loves dirt and mud.

* "The Origin of the Feeble-minded," Dr. W. A. Potts, British Journal of Children's Diseases, April, 1909, p. 177.

The prognosis must now be considered. This girl, at the age of ten, can walk and talk. That is about all she can do. She is unable for any serious, bodily, or mental exertion. She has, unfortunately, a feeble mind in a feeble body. From the grosser defects of infancy she has emerged, but further progress is unlikely. It only remains now to answer two questions: Will she live long? Will she be able to earn her livelihood? The reply to both must be in the negative.

EPIDEMIC CEREBRO-SPINAL MENINGITIS IN PARIS—A REVIEW.

By J. D. Rolleston, M.A., M.D.Oxon.,
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The recent epidemic of cerebro-spinal meningitis in Paris and the scattered outbreaks throughout the provinces, though they never assumed alarming proportions,* have been of sufficient importance to rouse considerable interest in the French medical world, as is shown by the numerous publications relating thereto. The predilection of the disease for children, which has been attributed by Chauffard to the relatively free communication existing at that age between the nasal fossæ and the meninges, has been well exemplified in this as in other epidemics; and it is from physicians attached to the children's hospitals, and especially from Dr. Netter of the Hôpital Trousseau, that the most instructive communications have emanated. The value of anti-meningococcic serum, to which American physicians have recently testified, has been unanimously confirmed in this epidemic. Under the new treatment not only has the mortality—which under previous methods ranged from 60 to 80 per cent.—fallen to under 20 per cent., but recovery has been rapid, and sequelæ have been comparatively rare. The mortality, though still high in infancy, has been reduced from 87·5 per cent. to 33·3 per cent. in children under one year. In serum-treated cases the number of sequelæ was only 2·85 per cent., of which otitis interna was the most frequent and serious, as compared with 23·5 per cent. in cases not so treated (1). Numerous brands of serum were employed, but those which yielded the best results were prepared by Flexner at the Rockefeller Institute in New York and by Dopter at the

* Netter calculates that about three hundred cases have occurred in Paris between January and May of the present year, 'Bull. de l'Acad. de Méd.,' tome 61, 1909, p. 508.

Institut Pasteur in Paris. Dopter (2) has compiled statistics of 196 cases which have been treated with his serum in various parts of France since the beginning of 1909. The mortality was 15·86 per cent., which falls to 10·32 per cent. on subtracting the cases which were moribund when first treated, as well as those in which death was due to other causes than meningitis. In three kinds of cases he admits that the serum is of no avail—cases treated too late, septicæmic, or hypertoxic forms, and cases in which cerebral symptoms predominate. He has found that the intra-venous injection into horses of living cultures of the meningococcus has produced a more efficacious serum than that furnished by simultaneous injection of both the micro-organisms and their toxins, since the mortality of cases treated with serum prepared by the former method was 10·93 per cent., as contrasted with a mortality of 18·18 per cent. among cases treated with serum prepared by the latter method.

Netter treated fifty cases exclusively by Flexner's serum, with a mortality of 18 per cent., which falls to 8·89 per cent. on subtraction of the moribund cases and of those in whom death was due to other causes than meningitis (reduced mortality). The reduced mortality among the children under two years, who formed nearly a third of the total, was 15·4 per cent., and among the rest 5·8 per cent. The earlier the treatment is adopted the more likely it is to be successful; but that it may be of value even in late cases is shown by the fact that speedy recovery occurred in four of Netter's cases, which had first been injected on the sixteenth, twenty-fourth, twenty-fifth, and twenty-eighth days respectively (4). The method of administration is important. Subcutaneous injection is useless owing to the impermeability of the meninges, and should be abandoned. To be efficacious the serum should be injected into the spinal theca. In each case the injection should be preceded by lumbar puncture, and the amount of cerebro-spinal fluid withdrawn should equal or preferably exceed the amount of serum injected. Dopter (5) states that if this precaution be not taken signs of compression may result, as shown by severe headache, convulsions, and syncopal attacks. In some cases, however, in which repeated lumbar puncture may fail to remove any fluid, injection of serum is none the less urgent. It is, therefore, consoling to learn that both Netter (6) and Comby (7) have on several occasions injected serum after a "dry tap," with beneficial results. Netter (8) recommends the employment of comparatively large doses at a time—20 to 30 c.c. for children, and 30 to 45 c.c. for adults. According to the same authority the injection

should be repeated daily for three to four days in every case, at the end of which time not only is there an improvement in the general condition, but the cerebro-spinal fluid is clearer, the meningococci diminish in size and number, and lose their staining capacity and viability in cultures, while the leucocytes show less morbid change and tend to disappear. A high temperature by itself should not be regarded as an indication for fresh injections. Pyrexia and even temporary aggravation of the meningeal symptoms may be due to the serum, especially in cases of anaphylaxis (9). The possibility of such symptoms occurring is, of course, no contra-indication to the employment of anti-meningococcic serum any more than the possibility of anaphylaxis is to the administration of antitoxin in the treatment of diphtheria. The frequency and date of appearance of serum eruptions, usually of an urticarial type following intra-spinal injection, are just the same as with rashes following the subcutaneous method, as Netter (10) shows by comparing his figures with those given by Currie in the Glasgow epidemic. In addition to serotherapy, the frequent use of hot baths and the employment of collargol by inunction, subcutaneous or intra-muscular injection have been found of service by Netter (11). The application of leeches to the mastoids and ice to the head, with calomel and iodide of potassium internally, is recommended by Boinet (12). The administration of diphtheria antitoxin, advocated by some writers, is severely criticised by Netter, who has collected from literature all the cases so treated, among whom the mortality was over 80 per cent. (13). The experience furnished by the French epidemic has confirmed the prevailing doctrine that cerebro-spinal fever, though undoubtedly contagious, is much less so than the common eruptive fevers, including typhoid. The vitality of the meningococcus outside the human body is feeble, since it is soon destroyed by desiccation or mild disinfectants. In only twelve out of eighty-two cases investigated by Netter (14) was there a history of contagion. Everything tends to show that the disease is spread by healthy "carrier" cases. The prophylaxis of the disease therefore requires the isolation of carrier cases and the disinfection of their nasal cavities in which the meningococci lodge, for which purpose the insufflation of dried serum and spraying with pyocyanase are recommended. Carriers appear to be more frequent in the houses of the poor than in well-to-do families, and their rarity among the medical and nursing staffs of a well ventilated hospital is shown by the fact that Netter did not find a single case among the ten members of his staff. It is interesting to learn that the number of carriers who subsequently

develop the disease is small. Thus Vaillard (15) states that among seventy-four carriers examined and isolated during an epidemic at Evreux only one case subsequently was attacked with meningitis, eleven days after he was isolated.

Several interesting papers have appeared on the changes of the cerebro-spinal fluid in the course of the disease. As is well known, the typical fluid of cerebro-spinal meningitis is turbid and its cellular contents consist almost exclusively of polymorphonuclear leucocytes. Netter and Debré (16), however, have shown that clear fluid, the cell contents of which are mainly mononuclears, may be met with both at the beginning and in the late stage of the disease. Similar evidence is given by Dopter (17), who in four out of 145 specimens of cerebro-spinal fluid from cases of epidemic cerebro-spinal meningitis found an abundant or even exclusive lymphocytosis, and by Boinet (18), who describes a malignant form of rapid evolution in which the cerebro-spinal fluid is clear and rich in lymphocytes. It can readily be understood that such cases may be regarded as tuberculous meningitis, especially if no meningococci can be found in the fluid, and serum treatment be withheld to the detriment of the patient. For the recognition of the true nature of such cases Vincent (19) has introduced a method which he has denominated the precipito-reaction. The cerebro-spinal fluid of the suspected case is centrifugalised, and the clear supernatant fluid is poured into three tubes. To each of the first two a drop of anti-meningococcic serum is added, while the third tube serves as a control. The tubes are then hermetically sealed and placed in an incubator at 55° C. After eight hours, if the reaction is positive, a turbidity will be found in the first two tubes, owing to the precipitation of the soluble products of the meningococcus by the specific serum. Other observers (20) have confirmed the value of this reaction, which is of service for detecting not only cases of cerebro-spinal meningitis in an early stage but also those which run an abortive course throughout (21) as well as the fulminating cases already alluded to, described by Boinet. Associated forms of cerebro-spinal meningitis in which there is a simultaneous infection of the meninges by the tubercle bacillus and the meningococcus are stated by R. Debré (22), Netter's interne, to occur with special frequency in epidemic times. The existence of such forms, as Debré points out, can only be determined by bacteriological examination of the cerebro-spinal fluid.

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12. Boinet.—'Bull. de l'Acad. de Méd.,' lxi, p. 633.
13. Netter.—'Bull. de la Soc. Méd. des Hôp.,' xxviii, p. 59.
14. Netter.—'Bull. de l'Acad. de Méd.,' lxi, p. 510.
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21. Salebert and Louis.—'Bull. de la Soc. Méd. des Hôp.,' xxvii, p. 1226.
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Société de Pédiatrie, Paris.

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Hydronephrosis in a Child aged 3 years.—M. Villemin related the case of a child with an abdominal tumour about three times the size of the fist. The quantity of urine passed was much below normal. Operation discovered a hydronephrosis of obscure ætiology. The incision made was not lumbar, but transperitoneal, which the author preferred as rendering the operation easier in so young a subject.

Auto-strangulation of Meckel's Diverticulum.—M. Villemin gave notes of the case of a child, aged 4 years, brought to the hospital seriously ill with diffuse abdominal pain and contraction of the muscular wall, peritoneal facies and cold, blue extremities. The intestinal evacuations were normal. Pulse 120; temperature 38·4° C. A diagnosis of appendicitis was made in presence of these symptoms added to the rapidity of onset and greater pain at MacBurney's point. At the operation the appendix found normal; turbid fluid in the peritoneal cavity. Under the liver was a hard mass surrounded by intestinal folds, which proved to be Meckel's diverticulum.

Foreign Body in the Left Bronchus.—M. Villemin related the case of a child who had swallowed a metal pencil case. Very little discomfort was experienced and respiration hardly interfered with. Radioscopy, however, showed an almost complete opacity of the whole of the left thorax. Attempts were made to extract the foreign body by use of bronchoscopy, but after repeated efforts it was found impossible to pass the glottis. Tracheotomy was then performed and an attempt made to reach the foreign body by means of direct illumination. This was also unsuccessful. A forceps was then passed into the orifice, and after a series of trials a metal pencil case 4 cm. long and 1 cm. thick was extracted. The author concludes from this case (1) that in young children superior bronchoscopy is very difficult while subglottic bronchoscopy is easy; (2) that the instrument which is passed into the bronchus should be fenestrated on one side so as to allow respiration on the opposite side; (3) that the older methods of using the forceps without the aid of direct illumination are in many cases very successful in facilitating the extraction of foreign bodies from the bronchi.

Scarlatina and Varicella.—M. Nobécourt presented a series of cases of children suffering from scarlatina, and who contracted varicella between the fourth and twenty-eighth day. The cases showed that the incubation period of varicella was lengthened, that the disease was more severe, and that considerable cicatrisation followed the evolution of the papules. MM. Variot and Leroux had observed similar cases which terminated in death by hyperpyrexia.

Results of Ablation of the Thymus for Laryngeal Stridor.—M. Veau showed two children on whom ablation of the thymus had been performed; in one the beneficial result was immediate and in the other no good result followed. The author concluded that surgical intervention was not indicated except when suffocation was threatened. M. Variot was of opinion that in laryngeal stridor attacks of suffocation did not usually occur, and this was the differential characteristic of stridor due to hypertrophied thymus. M. Comby was also of the same opinion.

Specimen: Larynx in a Case of Laryngeal Stridor.—M. Ribadeau-Dumas showed the larynx of a child, aged 2 months, who died of bronchopneumonia during an attack of laryngeal stridor. The lesion was the same as described for the first time in France by M. Variot, and consisted in a rolling up of the epiglottis and approximation of the aryepiglottic folds, small hæmorrhagic parathyroid spots were noticed but they had no part in the production of the stridor. M. Variot remarked how the specimen showed the falsity of the theory that attributed all cases of stridor to the action of the thymus.

Lumbar Scoliosis.—Mme. Nageotte showed a girl, aged 15 years, suffering from left lumbar scoliosis, in whom the wearing of an orthopædic corset very markedly altered the vertebral curve.

Enuresis in children.—M. Merklen read a paper on this subject. Viewing the facts in those cases where involuntary micturition depends on a well-defined cause such as epilepsy, urinary hyperacidity, etc., the enuresis must be classed as hypogenesic. This depends on incomplete development or a functional disturbance of the pyramidal system. It forms part of the

symptom-complex of motor debility and inhibition as described by E. Dupré. Out of 48 paratonics the author counted 18 enuresics, *i. e.* 37 per cent.; out of 116 non-paratonics he only found 8 enuresics, or 6·8 per cent. On the other hand, in 26 enuresics he found 18 paratonics and 8 non-paratonics. The fact that enuresis is specially nocturnal does not contradict this view; the nocturnal enuresic being in effect a diurnal pollakiuric. The hypertonia manifests itself by day as by night.

Supra-renal hæmorrhage and abscess of the liver in pneumococcal broncho-pneumonia.—MM. Babonneix and Paisseau related the case of a patient in M. Hutinel's clinique who died at the age of eighteen months of a pseudo-lumbar broncho-pneumonia complicated by purulent pleurisy. The autopsy revealed the presence of miliary hepatic abscesses and hæmorrhage in the right supra-renal. This hæmorrhage, which was considerable, occupied the entire medullary substance; its phlebitic origin, shown by the presence of sections of thrombotic vessels, seemed to have some connection with the infective hepatic lesions, which no doubt facilitated infection of the supra-renal veins. Symptoms of supra-renal insufficiency were masked by those of general infection and jaundice; only a marked hypertension would have called attention to the probability of a capsular lesion.

Vincent Dickinson.

Abstracts from Current Literature.

Medicine.

Impetigo and nephritis (*'Med. Press,' March* 3, 1909).—According to **Girard** impetigo in children is frequently accompanied by nephritis, the result of the cutaneous lesion: the impetigo disappears first, and afterwards the symptoms of the renal complication. Two clinical types are found, the transitory and the acute form. The first occurs in cases where only slight symptoms are found and are only confirmed by the presence of albumin in the urine. The quantity varies between 10 and 15 grains to the quart, but it may be more abundant. Hæmaturia has been found by microscopic examination, but sometimes the amount is sufficient to colour the urine; in addition epithelial and hyaline casts may be found. The other symptoms usual with nephritis are absent; thus neither œdema, cardiac trouble nor uræmic symptoms are observed, and definite recovery is the rule. Otherwise nephritis originating through the skin is a serious affection, and in some cases general anasarca has been observed. In others the œdema is hardly perceptible, a puffiness of the face and a waxy colour of the skin representing all the abnormal signs. The heart is in no way disturbed and nothing is found in the lungs, but examination of the urine reveals a more or less large quantity of albumin. In grave cases of nasal complications after impetigo the child is pale and very thin, the eyelids are somewhat puffy, the abdomen is large, with a voluminous liver, the heart dilated and the pulse rapid and irregular; the urine is of a high colour, dirty, and contains about a drachm of albumin to the quart. In the course of this nephritis uræmic symptoms, such as anasarca, oliguria, dyspnœa, epistaxis, vomiting, etc., may occur, causing the life of the patient to be in great danger. In the course of

impetigo, nephritis is consequently a complication which should not be overlooked. The urine of every child suffering from impetigo or impetiginous eczema should be examined. On the rapidity of the diagnosis, and consequently on the efficacy of the treatment, will depend the nature of the prognosis. Benign in the majority of cases, it can become very grave, this being due, perhaps, to a special virulence of the infecting germs at the seat of the cutaneous lesion, or to the general weakness of the patient.

T. R. Whipham.

The biliary cirrhosis of children (infantile liver) (*'Indian Med. Gaz.,' February*, 1909).—**F. Pearse.**—For many years a peculiar disease of the liver in infants, accompanied by fever and attended with a high mortality, has been recognised in India (Bengal). All the tissues of the body are bile-stained. The liver is at first enlarged, but later becomes small. There is no peri-hepatitis, but the external surface is granular and the liver-substance is tough. The cells are much altered, many being destroyed and others converted into masses of granular *débris*. In the portal spaces many bile-ducts are found. The intercellular connective tissue is not applied closely to the degenerated cells but forms a network, in the spaces of which the cells lie. It has been suggested that the disease is due to an irritant which primarily attacks the liver-cells and also leads to a proliferation of the connective-tissue elements. The proliferation of the bile-ducts is not so easily explained; it may be a curative process in which a regeneration is brought about by a multiplication of bile-ducts from which masses of liver-cells are formed (Paltang). The other organs of the body seem unaffected except the kidneys, which show marked degeneration and shedding of the tubular epithelium. The disease is not due to alcohol, there is no evidence of syphilis, and the pathological changes are quite different from the liver enlargement which follows malaria. The disease is almost entirely limited to children between the ages of six months and two years. Some families seem liable to the disease. It occurs among rich and poor, but Hindus seem to be more frequently attacked than Mahommedans. The onset is insidious, and the disease varies in its duration from a month only to perhaps two years. Generally the first symptom is enlargement of the liver, which is followed by vomiting, anorexia, and slight fever, while the complexion assumes a sallow hue. The liver may become excessively large and be somewhat tender. Later jaundice and œdema set in. The stools are deficient in bile, but the urine is deeply stained. Fever increases with the progress of the disease. The prognosis is extremely unfavourable, and when once started the disease is said to be almost always fatal. It occurs in sucklings, in infants artificially fed, and in children between one and two years of age, who are given all sorts of food, so that it may be reasonably concluded that the disease is a parasitic one and not due to errors in diet, but whether it is microbic in origin or due to larger forms there is no evidence to show.

T. R. Whipham.

The epidemic of cerebro-spinal meningitis of Milan in 1907 (*'La Pediat.,' January*, 1909, *No.* 1, *p.* 1).—**C. Hajech** gives interesting details of this epidemic, which occurred chiefly in children. The onset was sudden, and convulsions not rare; there was no prodromic period, the children passing suddenly from complete health to a condition which aroused alarm and compassion. The symptom which dominated the clinical picture was nuchal spasm, which was the first to appear and the last to disappear, and was the most constant and obstinate characteristic of the disease; cutaneous

hyperæsthesia came next in frequency and intensity. Among fairly constant initial symptoms were redness and swelling of the tonsils and soft palate, muco-purulent nasal discharge and redness of the cheeks. Herpes was common; usually labial-meningococci were never found in the vesicles. Erythema urticaria and sudamina were common even in cases treated without serum, as were disseminated punctiform hæmorrhages on the skin, but none of the forms of extensive cutaneous hæmorrhage were seen which have earned the name of "spotted fever" in America. Paralytic manifestations were exceptional, as was also boat-shaped abdomen. Noticeable in nearly all stages of the illness were Kernig's and Babinsky's signs, Trousseau's *tâche*, the signs of Laséque, Leichtenstern, Oppenheim and Mendel, and exaggeration of tendon reflexes. Tremor specially in the upper limbs and trisma were also observed. The temperature was continuously raised in the first days of the illness, and was subsequently atypical. Consciousness was diminished, acetonuria frequent, albuminuria exceptional, the diazo-reaction absent, urine abundant and clear. Wasting was rapid and progressive; there were exacerbations of pain during the night. Defervescence was usually by lysis. The cerebro-spinal fluid gave Weichselbaum's meningococcus in 88·5 per cent., Fränkel's pneumococcus in 6·5 per cent., and in 4·9 per cent. a non-specified diplococcus. In children the duration of the illness in favourable cases varied from eight to forty-four days. Bronchitis, pneumonia, otitis media, pericarditis, endocarditis, parotitis and synovitis were the complications in order of frequency. The mortality was 55·6 per cent.; there were no deaths in the cases in which Fränkel's pneumococcus was found. Seventy-two per cent. of the cases were in children under 15 years of age; the youngest was aged $3\frac{1}{2}$ months, the majority between 5 and 7 years; 54·7 per cent. were males. During the epidemic, erysipelas, scarlatina and pneumonia were especially prevalent, while measles was conspicuous by its absence, and it was a strange fact that not a single case of gonococcic vulvo-vaginitis, which had been very prevalent, was observed in the children's section. Although the disease is admittedly contagious, the Milanese epidemic did not furnish any proofs of it to a noticeable degree.

VINCENT DICKINSON.

Severe illness caused by the prolonged use of vegetable broth in an eczematous child (*'La Clin. Infant.,' February*, 1909, *No.* 4, *p.* 114).—**M. G. Variot** described this case at the Soc. Med. des Hôp. The child, aged 15 months, who had been breast-fed, began to show signs of eczema when about six months old. Cow's milk was substituted, but the eczema persisted. Milk was then forbidden as being "toxic for this child" and producing diarrhœa. Broths made with vegetables and chicken or beef and salted were the only foods now given. The effect of this *régime* was that the infant rapidly wasted, and was subject to attacks of eczema alternating with diarrhœa and anasarca. Tetany was also noticed. The abdomen became ascitic, and there was an intense erythema on the buttocks and thighs. On a return to milk diet all these symptoms disappeared, except that the child had a little facial eczema. There can be little doubt that all the symptoms, especially the anasarca and tetany, were due to deprivation of milk and prolonged use of *salted* broth. Recently Heim and John have drawn attention to the important part played by chloride of sodium and bicarbonate of soda (5 grm. of each to a litre of water) in order to explain the efficiency of a watery diet in the treatment of diarrhœa. They estimate that the absorption of these saline solutions contributes in preventing dehydration

of the tissues at the end of a diarrhœal flux; and besides, have observed under these circumstances very rapid increase of weight, which they attribute to the retention of chlorides, and which co-exists with the appearance of subcutaneous œdema of the face and limbs (*vide* '*Presse Medicale*,' *May* 30, 1908). It may be asked whether vegetable broths do not act in acute gastro-enteritis by reason of the salt which has been added. In the case reported it was evident that the anasarca was due to the retention of chlorides, since it ceased immediately on the resumption of milk. Vegetable broth may be useful in combating gastro-enteritis, just as rice-water, or the salt and bicarbonated solutions of Heim, or plain boiled water, but their nutritive value is next to nothing, and the result of their prolonged use in infants in place of milk is inanition, often complicated with serious disorders.

VINCENT DICKINSON.

On essential incontinence of urine ('*La Clin. Infant.*,' *February*, 1909, *No.* 8, *p.* 85).—**M. Perrin,** in a communication to the Fribourg Society of Medicine, studies different types of this affection, and draws attention to the fact that it occurs only at night. The cause of this is too heavy sleep, which prevents the desire to micturate waking the child. This is confirmed by two facts: first, nocturnal enuresis is almost exclusively observed in infants who are the subjects of respiration obstruction, and who sleep too soundly due to carbonic acid intoxication; secondly, the complaint is cured only when the primary cause disappears. The author thinks that nocturnal incontinence is explained by the fact that the lethargic sleep of a child puts his brain completely out of action, and hence, as the medullary centre acts alone, when the bladder feels the desire to empty itself this medullary centre, instead of transmitting this communication to the brain, takes a responsibility which it is not capable of in giving a direct order to the detrusor to act. In the waking condition it is otherwise; the brain intervening, the sensation of "full bladder" passes from the bladder to the medullary centre, then by the spinal cord to the cerebral centre of perception. Thence the impression is transmitted to the centre of interpretation, and this transmits it to the motor centre, which acts when convenient. VINCENT DICKINSON.

Ascarides in an infant, aged 13 months ('*Lyon Médical*,' *February*, 1909, *No.* 7, *p.* 340).—**Weill** and **Mouriquand** reported to the Soc. des Hôpit. de Lyon the case of an infant with ascarides, a rare affection at this early age. The illness began with colic and screaming, and fourteen days after the infant for the first time passed ascarides; gastro-intestinal troubles followed, with glairy loose stools, ten *per diem*, containing ascarides. On admission the child cried continually, the abdomen was slightly tympanitic; he vomited, with sudden cessation of the symptoms, a mass of entangled worms about the size of a small orange. The same attacks continued the following day, ending always in the same way. From an ætiological point of view, it is difficult to explain the presence of ascarides in an infant fed on milk; the mother related, however, how he had on several occasions put earth into his mouth. VINCENT DICKINSON.

Sudden death: hypertrophied thymus ('*Lyon Médical*,' *February*, 1909, *No.* 7, *p.* 337).—**L. M. Bonnet** reported to the Soc. Med. des Hôpit. the case of an infant, aged 8 months, admitted for a slight skin affection. One night he woke up crying, which ceased in about a quarter of an hour. He then was seen to be breathing slowly and feebly, but there

was no cyanosis. He remained in a prostrate condition for about three hours and then died. The autopsy showed nothing abnormal in the heart or abdominal viscera; there was a little bronchitis, but no pneumonia. The thymus was markedly enlarged, weighing 37·50 grammes: to the naked eye its structure seemed normal. The thyroid, suprarenals, and lymphatic glands were of normal size. The trachea was not flattened, showing that death was not caused by tracheal compression.

VINCENT DICKINSON.

The naso-pharyngeal origin of chorea (*'Bull. et Mém. de la Soc. Française d'Oto-Rhino-Laryngol.,'* 1908).—**S. L. de Ponthière** (Charleroi).—It is exactly twelve years since I had the case of a girl, aged 9 years, brought by her parents to the department for diseases of the nose and throat, at the Hospital of St. Peter at Louvain. This child had been severely attacked some eight months earlier with all the symptoms of Sydenham's chorea: convulsive involuntary muscular movements of the head and limbs, ataxic contractions of the face to the point of embarrassing speech, etc. But it was not for this condition (which, as it had resisted medical treatment, was considered by her relations to be incurable) that the child came to the laryngological department; it was to put an end to the naso-pharyngeal troubles to which she had been subject for several years. This child had an exclusively buccal respiration; she snored, caught colds, had anginas and glandular attacks. The fœtid breath, morning anorexia, pain in the side, nightmares, etc., completed the tonsil-adenoid syndrome, save for ear complications. Examination—not easy, in view of her condition—revealed the presence of adenoids and tonsils with infected crypts, which I removed several days later under chloroform anæsthesia. When I saw the patient again, eight days after, it was not without some astonishment that I found a favourable change had come, not only in her naso-pharyngeal function, but especially in the evolution of her neurosis. The disordered and incessant movements of the chorea were evidently retrogressing. Already the child could rest several minutes without wriggling as before, and matters went so well without the addition of any treatment that three weeks later not the least symptom of this affection persisted, an affection which is not always transitory, as some are pleased to think, nor inoffensive, as observation abundantly demonstrates. I carefully refrained from concluding from this case that the radical treatment of chorea was either discovered or confirmed, for I was at that time not without knowledge of the regrettable excesses into which, like most of the still young sciences, fell the rhinology which was proclaimed *urbi et orbe* by the voice of its most ardent neophytes, as putting an end to endometritis, regulating the action of the heart with inefficient valves, or re-establishing nephritic kidneys by sticking forceps or cautery into the nose. It was then the age, as M. Lermoyez recently put it, not of *nosology*, but of *nasology*. At that time I was, therefore, content to ask my colleague in the in-patient department to send me all the chronic chorea cases, considered as partly incurable, which were to be found there in much greater numbers than in the otological service, and later to allow me to examine their naso-pharyngeal regions in my own clinic. And I hasten to state that the number of these patients who benefited by surgical treatment was very considerable. If I do not give here numbers to show, according to my theory, what was the exact proportion of choreics examined and of those who were cured by an operation, it is because I consider that statistics do not amount to much, and that it is far more interesting to know

on what it is necessary to base a conclusion than to say that in 30 or 60 per cent. of cases the facts ought to turn out as expected. For twelve years, therefore, I have had my attention drawn to the pathogenesis and treatment of chorea, and I must say, without hesitation, that I am convinced that, much more frequently than the general physician can imagine, its rapid and permanent cure, and not a passing improvement, depends upon the *surgical treatment of the naso-pharynx.* Now, in going over the most recent papers and the most brilliant reviews on chorea, if they are all unanimous in recommending the often fallacious benefit of a therapy based on chloral, bromide, antipyrin, salicylate of soda, arsenic, etc., mingled with hygiene and various tonics, not one, I think, points out in return the possible existence even of a surgical treatment. Nevertheless, in attentively following, step by step, the symptomatology of what in reality is itself only a prominent symptom and not a morbid entity, to understand the chorea of Sydenham, which must not be confounded with the dance of St. Guy [our term "St. Vitus' dance" is called by the French "the dance of St. Guy," M. Y.], one cannot but be struck by the analogy which exists between the choreic person and the choreic with auto-intoxication of naso-pharyngeal origin. As regards the precise origin of this last term, "dance of St. Guy," let this be said to satisfy the curious: Every year, in the month of May, is celebrated a festival at a chapel of St. Guy, near Ulm (an imperial city on the Danube, in the circle of Swabia), where all the fanatics of the neighbourhood dance day and night until they fall into convulsions or become ecstatic, all in honour of the Saint (G. Buchan, M.D., '*Treatise on Medicine,*' 1802). In a general way Sydenham's chorea, a cerebro-spinal neurosis involving the motor and psychic system, appears to us essentially unknown. One finds it most frequently at the period of the second dentition or at the approach of puberty; most often in the female sex, it shows itself especially in children of delicate or feeble constitution, and particularly in lymphatic subjects or those predisposed by their condition to disorders of innervation. Rainy and cold months and living in low and damp situations certainly favour its appearance. The pathogenesis of chorea may be summarised in two great theories: (1) The *neurosis theory,* which seems to me less solid in reality than in appearance. (2) The *theory of rheumatic infection,* which reckons, with reason, the largest number of adherents. It goes without saying that other infections, which are not, properly speaking, of the rheumatic type, play an equally, but less frequently, undeniable part. The onset of the disease is rarely sudden. It is almost always slow and gradual. Slight modifications of mind, intelligence and motility are very often noted. The children are less cheerful, more capricious, more impressionable. They weep easily, are quickly frightened, and seek to be alone. They are vacant, their memory is impaired, they are less apt at intellectual work; their sleep is broken, often troubled by nightmares, night-terrors, hallucinations of sight and hearing. They grimace involuntarily, thus drawing upon themselves useless reprimands. They often complain of sensory disorders, pains, numbness of the limbs, headache, painful stitches in the side, and dyspnœa on the slightest exertion. These are, classically, the chief symptoms presented by choreic cases. But is this not rather to be explained, in several close features, by the symptomatology of an adenoid case? The aprosexia, the disturbed nights, the lymphatic temperament, even down to this last detail given by some authors: a certain degree of hebetude which persists in the choreic, even when he has been cured for some years, does it not give a faithful picture of

the pitiful little dunces of nasal origin? But this analogy, thus summarised simply in its main points, luminously explains the infectious origin of chorea. It is, however, necessary to divide the possessors of tonsils and adenoids into two main classes. In the first group come those in whom the lymphatic organs are simply hypertrophied but *healthy*, only playing, therefore, the part of purely mechanical obstruction. In the second group, the more numerous, are classed those in whom the tonsils or adenoids, whatever be their size, are *infected*, almost continually secreting septic products, which are sniffed up, swallowed, and slowly, but surely, poison the whole economy. This chronic auto-intoxication admirably prepares the ground for producing all diseases and particularly nerve disorders. And when one knows that common constipation produces symptoms of meningism, especially in children, there is nothing astonishing in a nervous system, habitually bathed in and nourished by a blood which carries septic principles, showing its condition of discomfort by choreiform manifestations. This equally explains the poverty of work done in the way of autopsies or histological researches instituted with the idea of finding cerebro-spinal anatomical alterations which have been thought to be produced by chorea. This infection, which draws its source from the naso-pharynx, may be of different kinds, but it is none the less true that it is the infection of the rheumatic type which predominates in this region and which lurks in the tonsils and in the adenoids before giving origin to articular or visceral complications. All the erythematous and pultaceous anginas of infancy are serious warnings. It is they which, by their repetition, establish in after years the more or less accentuated, but pure, arthritic type. Everyone knows how frequently these acute anginas, rheumatic or gouty, disappear to give place to arthrites or cardiopathies. It is a no less established fact that articular rheumatism commences generally, not in the articulations, but in pharyngeal manifestations. Often, even, the rheumatism does not go beyond this region throughout the duration of a long life. The great mistake of those who refuse to see the relation which exists between chorea and rheumatism lies in their own unreasonableness. Indeed, to exclude rheumatism, they instance the case of chorea *preceding* the rheumatic, articular, or cardiac manifestations. But who would dare to seriously pretend that every rheumatic manifestation ought, to earn this qualification, to be accompanied by these great and startling manifestations? It is as if one denied syphilis in a patient because he did not yet show the nasal falling in! Are not the generality of the patients with high tension or congestions, the migrainous, of those even who simply experience lumbago or more or less painful erratic spots, etc., true arthritics? The influence of the eruptive fevers—scarlet fever, measles, smallpox, etc.—is often equally accused of favouring the origin of chorea. This influence is unquestionable, for the excellent reason that it is daily demonstrated that very often, after these fevers, a pharynx which was healthy before has its tissues become and remain infected, noticeably hypertrophying, and then presenting all the symptoms which result from naso-pharyngeal obstruction and infection. Clinical observation, therefore, very frequently confirms the naso-pharyngeal origin of rheumatism. A further character which contributes to show the influence of the rheumatic poison in chorea is the condition of profound and special anæmia met with in patients attacked by or just cured of this neurosis. Hence the habitual indication, in the therapy, of tonics, reconstituents, etc. Another point, equally drawn from therapeutics, again supports this conception: it is the preponderance of the action of antipyrin, salicylate of soda, and colchicum,

which, if they do not cure, at least unquestionably relieve in the great majority of cases, whilst bromide and chloral merely stupefy the patient without bringing real relief, if it is not the benefit which results from the loss of appetite which they provoke and which thus more or less allows the organism to get rid of the toxins with which it is so saturated. Now if all the tonsil-adenoid cases do not start chorea (far from it), it is because, as I have already said, they are not all infected; in the second place because the infection of their naso-pharynges naturally may present every degree in the scale of the virulence, quality, and septicity of the microbic flora there located, and especially (and I insist upon this last point) because the *soil* is not the same in all. It is necessary, to do intelligent work, not to allow the important factor of the soil to pass, a factor which one has too great a tendency to ignore and to replace by theories and hypotheses, which are too often only seductive juxtapositions of scientific terms. There is yet one last argument which is more eloquent than all denials or expressions of scepticism; it is the argument of fact. If it can be interesting to know what is exactly the coccus or bacillus which intervenes to cause chorea of naso-pharyngeal origin, I consider that it is much more useful to know if one can bring about a rapid cure in a chronic choreic who withstands the action of medicines. Now each time that I have met with one of these patients and have diagnosed in him the presence of tonsillar hypertrophy or adenoids, of which it is so easy to demonstrate the acute or *chronic* pathological condition, I have seen the cure of the chorea follow the operation practised very closely. As it is easy to understand, it is these morbid conditions which do not belong to the chorea properly speaking and which are only the symptoms of various affections of the nerve centres. Such are, for example, St. Guy's dance, remarkable for the violent onset of the convulsions and the intermittence of the attacks; then the disorders of motility described by Romberg under the name of "static convulsions" or "static cramps," such as irresistible tendencies to go forward (propulsive chorea), to retreat, to go to right or left, to turn round and round (rotatory chorea). These disorders, often given the name of "chorea," are not continuous and return in attacks. They have for effect a locomotion of the patient, always in the same direction; they do not present the characters of choreic movements, and are often accompanied by cerebral symptoms. Jumping, vibrating, hammering choreas, that is to say, rocking, oscillation of the trunk or its members, are due to localised and intermittent spasms, dependent upon the same cause or allied to hysteria. In these varieties, indeed, one does not often find any indication on the side of the naso-pharynx, and investigations should be prosecuted as to the function of all the other systems in order to try and find out where the cause of the manifestations is located. To sum up, therefore, convinced of the very great frequency of the rheumatic origin of chorea and of the equally frequent existence of the naso-pharyngeal source of the rheumatism, applying myself to the lasting and rapid success obtained in the treatment of chorea by the surgical removal of this powerful source of intoxication formed by the tonsils or pathological adenoids, I cannot too strongly urge my colleagues to pursue, by their researches, what can only be the confirmation of the facts which I have the honour to put forward.

MACLEOD YEARSLEY.

The injurious habits and practices of childhood: their detection and correction (*'Med. Record,' June* 20, 1908, *p.* 1030.)—**Karl Goldstone** discusses simple masturbation, "habit spasm," sucking pica, nail-biting,

head-banging, spasmus nutans, pavor nocturnus and enuresis. He refers to the recondite ways in which young children produce pleasurable genital sensations by rubbing against a chair, the mother's knee, the pillow, etc. He mentions a case of masturbation in a child, aged 5 months, and remarks that the habit is far commoner amongst girls than boys. He rightly emphasises the tremendous importance that the habit has in relation to later psycho-neuroses. ERNEST JONES (Toronto).

A case of kala-azar (*'Allg. Wein. med. Zeitung.,' December* 8, 1908). —**Sluka** showed a boy, aged 9 years, at the Vienna Medical Society. The disease had lasted since the fourth year, and began with fever, emaciation, and abdominal swelling. The ascites disappeared but had returned. The boy had formerly been in India. The liver and spleen were enlarged. Blood showed leucopenia and increase of mononuclear leucocytes. Diagnosis, which lay between tuberculosis, Banti's disease, and kala-azar, was established by the presence of Leishmann's protozoa in the fluid drawn off by puncture of the spleen. M. D. EDER.

Achondroplasia (*'Allg. Wein. med. Zeitung.,' December* 8, 1908).— **Horhsinger** showed a boy, aged 8 months. The head was enormously big, strikingly hard and massive, the upper arm strikingly short, the fingers trident formed. Röntgen picture confirmed the diagnosis of chondrodystrophia fœtalis. The disease must be differentiated from rickets, osteoparesis, and myxœdema. Important diagnostic points are the flattening of the root of the nose and rosary of the ribs. M. D. EDER.

The prognosis of lung tuberculosis based on the Wolff-Eisner conjunctival reaction (*'Zeitschr. f. Tuberculose,' 5, Bd.* 14, *Heft* 1).— **Schuster** is of opinion that when the Wolff-Eisner reaction has been harmful in some cases, most probably the method has not been carried out properly. He thinks that, by the amount of reaction, one can form a prognosis for the period of the next two or three months, during which time the physical signs may be further considered. He says a negative result is (1) unfavourable as indicating decided tuberculosis, (2) favourable as indicating slight lung change. A markedly positive occurrence of the conjunctival reaction resembles the negative reaction according as—(1) in decided tuberculosis it shows that the body is approaching the limits of its power of resistance, and in this case the prognosis is inclined to be unfavourable; or (2) in slight lung changes it shows that there is not sufficient active tuberculous material in the body to cause the organism to succumb, then the prognosis is favourable. The markedly positive occurrence of the conjunctival reaction shows (1) in certain tuberculosis that the body at the time of administering the test, and probably also under suitable therapeutic influence, is resistant, but later on may have to wage battle with the tubercle bacillus and its toxins; (2) in slight lung changes that active tuberculous material is present in the body, but that probably later on the organism may be able to cope with the struggle which has to occur.

Ziegler (*'Beitrage zur klin. der Tuberculose,' Bd.* 12, *Heft* 1), after testing the conjunctival reaction in 600 cases, comes to the conclusion that for the early diagnosis and prognosis of lung tuberculosis the method is "absolutely useless." J. E. BULLOCK.

Gastro-intestinal disturbance at the onset of scarlet fever (*'Presse Méd.,'* 1909, *p.* 129).—**C. Lesieur** and **L. Baur.**—Among 100 patients

studied in Weill's service at Lyons sixty-seven presented digestive troubles at the onset of scarlet fever, which consisted in nausea, vomiting, and diarrhœa. Only one case showed evidence of appendicitis. The nausea was an early symptom, sometimes preceding but usually contemporaneous with the angina. It lasted twenty-four to forty-eight hours, and then usually disappeared. In only one case observed by the writers was the vomiting uncontrollable. This was in a fatal case of scarlet fever complicated by mumps. Diarrhœa is a very early symptom, is preceded by violent colic, and is of brief duration. It is usually followed by slight constipation. The digestive troubles did not seem to bear any relation to the angina, a mild sore throat being accompanied by as much gastro-intestinal disturbance as a severe case. Ninety-four of the cases showed the characteristic eruption of scarlet fever. Six cases had no rash, but had more or less digestive disturbance. The writers conclude that these symptoms have some diagnostic value in scarlatina without eruption.

J. D. Rolleston.

Gastric ulcer in children (*'Thèses de Paris,'* 1908-9, *No.* 55).—**A. Lasnier** has collected eighteen cases, one of which is original, of gastric ulcer in children whose ages ranged from two months to fourteen years. Ten occurred in girls, eight in boys. In four cases anomalies of development resulting in infantilism were noted. Two reasons are assigned for the rarity of gastric ulcer in children. (1) Hydrochloric acid is secreted in much smaller quantities in children than in adults, especially during the first four years of life. (2) The food passes much more rapidly from the stomach into the duodenum in children. Latent forms are those most commonly met with. In some cases there may be a period of vague digestive disturbance ; in others repeated hæmatemesis or sudden perforation following a violent effort or emotion or without apparent cause is the first sign. The true condition is usually not learnt till the autopsy, peritonitis due to some unknown cause having been diagnosed during life. Pain was present in more than half of the cases, but was never acute except in stenosis or perforation. Its localisation is difficult. Hæmatemesis was absent in two thirds of the cases. In more than a third of the cases perforation took place. Half the cases ended fatally, but as only complicated cases were recorded the prognosis is probably not so grave as would appear at first sight. Treatment, as in the adult, should consist in complete rest of the stomach.

J. D. Rolleston.

Intussusception in typhoid fever (*'Progrès Méd.,'* 1909, *p.* 123).—**R. Cruchet** and **Desqueyroux.** A boy, aged 7 years, was admitted to hospital in the third week of typhoid fever, and died two days later. His symptoms were uniform abdominal distension, tenderness of the cæcal region, and vomiting. Perforation was diagnosed. Death took place before an operation could be performed. At the autopsy, in addition to the characteristic typhoid ulcers, an ileo-cæcal intussusception was found, the length of the invaginated ileum being 20 centimetres. A few cases of intussusception during typhoid have been recorded in adults, but none hitherto in children.

J. D. Rolleston.

Typhoid fever without intestinal lesions (*'Progrès Méd.,'* 1909, *p.* 73).—**E. Sacquépée** and **F. Chevrel** record two cases. (1) Girl, aged 4 years, was admitted to hospital after four days' malaise and fever. On admission

there was abdominal distension, profuse diarrhœa, and prostration. Temperature 100·4° F. On the tenth day rose spots were seen on the abdomen, and *B. typhosi* was isolated from the blood. Eleventh day: nuchal rigidity, contracture of lower limbs, and Kernig's sign; Widal positive. Fourteenth day: death. The autopsy showed only congestion of the intestine and mesenteric glands. The brain was congested, the cerebro-spinal fluid was normal. Cultures from the heart, blood, lung, and spleen yielded *B. typhosi*. (2) Girl, aged 3½ years, was admitted on the third day of disease to a hospital in which three other members of the family were suffering from typhoid, with profuse diarrhœa and great prostration. Temperature 102·2° F. Seventh day: rose spots and enlargement of the spleen. Ninth day: Widal positive. Tenth day: death. Autopsy: intestine congested, no other lesions. Cultures from heart, blood, spleen, pulp, and lungs yielded *B. typhosi*. A large proportion of the cases of typhoid fever without intestinal lesions occurs in young children. A meningeal reaction is frequent. Owing to the intensity of the septicæmia the prognosis is grave. On the other hand there is no risk of perforation and peritonitis. J. D. Rolleston.

Measles at the Hôpital des Enfants Malades (*'Thèses de Paris,'* 1908–9, *No.* 167).—**Mlle. Corentsvète.**—This thesis, inspired by Professor Hutinel, contains the histories of 31 cases, of which 27 are original. During 1908 there were 970 cases of measles at this hospital, 92 of which arose after admission, 110 died; 71 cases with 24 deaths occurred in the medical wards, 21 with one death in the surgical. The highest death-rate was in the nurslings' ward, where the mortality was 62·5 per cent. The low morbidity and mortality on the surgical side are attributed to the prevalence of disinfection and asepsis, the comparative rarity of respiratory and gastro-intestinal affections which are so common in the medical wards, and to the higher age of the patients. As prophylactic measures the avoidance of overcrowding, the practice of antisepsis on the medical side, and the early isolation of those infected are recommended. J. D. Rolleston.

Empyema in scarlet fever (*'Bull. et Mém. de la Soc. Méd. des Hôp. de Paris,'* 1909, *p.* 643).—**Simonin** records three cases in soldiers of this rare complication. In the first case streptococcal empyema developed on the eighth day of a scarlatinal attack of moderate intensity. The evolution was rapid, and death occurred in spite of early operation. In the second case a streptococcal empyema developed on the twenty-ninth day of scarlet fever. Death took place from uræmia forty-eight hours after the operation. In the third case, which did not undergo operation, pneumococcal empyema secondary to consolidation of the right apex was followed by fatal septicæmia. J. D. Rolleston.

Uncinariasis in the Southern States (*'Pediatrics,'* 1908, *p.* 751).—**J. R. Snyder** draws attention to the prevalence of hook-worm diseases, which C. Wardell Stiles considers to rank in frequency with malaria, tuberculosis, and gonorrhœa in the Southern Atlantic States. Uncinariasis is due to soil infection from careless disposal of fæces, and is therefore a preventable disease. Children and women are more severely affected than men. Anæmia is the characteristic symptom. The infected children are dull and apathetic, and soon tire at work and play. In severe cases there may be extreme abdominal distension. Dirt-eating is not an uncommon symptom. The diagnosis is settled by the presence of the eggs of the hook-

worm in the stools. The prognosis is good in recent cases, but in old-standing cases the retardation of physical, mental, and moral development may seriously handicap the patient in later life. Treatment consists in the administration of thymol (5 to 20 gr.), preceded by a large dose of magnesium sulphate.

J. D. Rolleston.

The association ofmeasles with scarlet fever (*'Bull. et Mém. de la Soc Méd. des Hôp. de Paris,'* 1909, *p.* 171).—**Gouget.**—This association is not rare, especially in hospitals. Nearly all authorities are agreed as to its gravity. Measles following scarlet fever is more serious than scarlet fever following measles, owing to the frequency of broncho-pneumonia in the former case. During 1908, 676 cases of scarlet fever were under treatment in the Pasteur block at the Claude Bernard Hospital in Paris: 39 developed measles; all recovered. None contracted broncho-pneumonia. Gouget attributes this unusually favourable result to the early isolation of the patients by means of Koplik's spots and to individual isolation. In the subsequent discussion **L. Martin** insisted on the importance of individual isolation. The agglomeration of many cases in the same ward favoured the occurrence of complications. The low measles mortality of 3·4 per cent. at the Pasteur Hospital where such isolation was in force was in marked contrast with that in children's hospitals where the disease was not isolated. Thus at the Trousseau Hospital the mortality was 25 per cent., at the Enfants Malades 40 per cent., and at the Enfants Assistés 46 per cent.

J. D. Rolleston.

Surgery.

Gall-stones in a girl, aged 17 years (*'Bristol Med.-Chir. Journ.,'* 1908, *p.* 317).—**Carwardine** reports the case of a girl, aged 17 years, who for two years had suffered from indigestion independently of food. Three months previous to admission she had pain across the epigastrium and in the back, chiefly on the left side, and jaundice appeared when the pain ceased. The urine was dark and the motions were of a light colour. The jaundice subsided, but a second attack of pain occurred, and this in its turn was followed by a repetition of the jaundice. At the operation adhesions were found about the gall-bladder, which was surrounded by jelly-like lymph. The liver was large and congested, and the gall-bladder, which was of a yellowish colour, contained a milky fluid, stones and sand. An incision was made into the common duct, in which there was a large stone extending up into the cystic and hepatic ducts, which were full of stones and grit. The ducts were cleared of their contents and adequate drainage was provided. The pancreas was harder than normal. The patient made a rapid and perfect recovery.

T. R. Whipham.

Pancreatic cyst in a boy, aged 7 years (*'Bristol Med.-Chir. Journ.,'* 1908, *p.* 319).—The same author also describes this case. The patient, who was a thin boy, fell off his bicycle and struck his abdomen against the handle-bar. When seen two hours later there was a slight contusion over the left hypochondrium with pain and tenderness in the epigastrium. There was but little shock and no rigidity of the abdomen. The pain continued with severe colicky exacerbations, the temperature being 100° to 101° F., and the patient was frequently sick. Five days after the accident a rapidly increasing swelling was felt in the epigastrium with a well-defined lower

edge. The pain became more severe and the swelling increased in size till it reached three inches below the umbilicus and occupied the whole of the right side of the abdomen. The patient lost flesh, and three weeks after the accident the swelling still further increased in size and vomiting occurred. A week later the abdomen was opened and about three pints of clear yellowish fluid were withdrawn from a cyst, the wall of which was about one eighth of an inch in thickness and friable. The fluid was alkaline, specific gravity 1008, and contained 5 parts per 1000 of albumin (Esbach) and a considerable quantity of fat with pigment, cholesterin, and calcium crystals. Trypsin was found to be present, and a reducing substance, which was not sugar. After the operation very little more fluid escaped, but four days later a swelling appeared in the epigastrium and rapidly enlarged. The pain returned and the patient's general condition became worse. The abdomen was again opened, and on dividing the gastro-colic omentum a tense cyst was found, from which about one and a half pints of fluid with some coagulated serum escaped. The discharge was continuous and profuse, and caused considerable irritation of the skin, as if from digestion. The cavity was therefore washed out with weak adrenalin solution, and the patient was fed on raw and cooked sweetbread. After ten days the discharge rapidly diminished and the wound soon healed, the patient being perfectly well a year after the operation. The cyst first occupied the lesser peritoneal sac, and then involved the right loin through the foramen of Winslow. After the first operation the foramen must have become closed, leaving a retention cyst in the lesser sac of the peritoneum. T. R. Whipham.

Basal hæmorrhage in a girl, aged 16 years (*'Bristol Med.-Chir. Journ.,'* 1908, *p.* 322).—**Carter** records the case of a girl, aged 16 years, who was well developed and very anæmic. Her mother had had nine children, four of whom had died in childhood and four or five very early miscarriages, but not in series. The patient had complained of headaches, noises in the head and some deafness with indigestion. One day she vomited and on the next became apparently hysterical, but later lapsed into a state of coma with contracted pupils, exaggerated knee-jerks, a well-marked Babinski's sign and Cheyne-Stokes' respiration. At the apex a blowing systolic murmur was present. The coma deepened, the pupils became dilated, and the right optic disc became blurred and indistinct. The right side was a little more flaccid than the left, but no definite localising signs could be obtained. The urine was passed in the bed, and in its absence for examination basal hæmorrhage was considered as the probable cause of the condition. Convulsions supervened, and the girl died on the third day after the onset of the symptoms. At the necropsy the blood was found to have a diminished coagulability; an ulcer was present on the anterior wall of the stomach; the abdominal and cephalic arteries were thin walled. There was no lesion in the heart and no thrombi in any of its cavities. At the base of the brain there was a large hæmorrhage, which appeared to have originated from the right posterior cerebral vessels. No hæmorrhage was found in the pons or medulla, but in several cortical areas there were appearances suggestive of capillary hæmorrhage. The source of the bleeding was a venule or fibrosed arteriole, which opened into an aneurysmal dilatation. Neither atheroma nor endarteritis obliterans were present, and no syphilitic changes were found in the viscera or bones. The lesions may be ascribed to some congenital defect in the blood apparatus, as no sign of embolism could be discovered. T. R. Whipham.